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Scicon wins vote for MPs' retrieval system

SCICON has been chosen to provide an online information retrieval service to the House of Commons, on a bureau basis, finally bringing MPs into the computer age after 10 years of discussions.

Answers to Parliamentary Questions will be the first category of information to be loaded on to the system, giving MPs for the first time a subject index to Questions.

The service will run on a Univac 1100/61 at Scicon's computer centre in Milton Keynes, Bucks. The retrieval software will be Univac's Unidas package, which uses the DMS 1100 database management system.

This can handle fixed, formatted, or free text; at the House of Commons it will be used with a controlled indexing language that has already been compiled.

The online service will be supplanting nine different strip indexes that are currently in use in the Commons library (CW, February 29). Following Parliamentary Questions will be references to debates, legislation, EEC documents and current affairs.

When the system is fully operational about 100,000 references will be added per year. It is hoped to start live working in the autumn, in time for the new session of Parliament.

Initially eight terminals will be installed: in the library, in a nearby office building where data entry will be carried out, and one for use by the House of Lords. These will be 2630 and 2684 VDUs from Cifer, linked to Milton Keynes by private line.

Costs are not being disclosed, but they are described as "well within" the guidelines that had been laid down by the Commons services committee, namely £600,000 for the first year and £200,000 for subsequent years. The contract with Scicon is for a minimum of six years.

The system has been organised to be compatible with future developments in Parliamentary computerisation. These might include word processing, access to outside databases and retrieval of full text from Hansard, which is now switching over to computer typesetting.

A computer and technical services section has been set up to run the system, headed by Jane Wainwright, formerly a researcher with Aslib, the special libraries association.

No attempt will be made to load data on to the system retrospectively, and so it will have to be used in conjunction with the strip indexes for some time.

About 45,000 Questions are tabled each year. The systems will be expandable up to 30 terminals.

Telefunken–Modcomp link

THE West German joint venture company between AEG-Telefunken (75%) and Modcomp of Florida (25%) is to be called ATM Computer GmbH and will be based in Munich. Digital Equipment's former Central European manager Helmuth Caqui has been appointed president.

The new company will develop, manufacture and market minicomputer systems, and will start with Modcomp's Classic line and AEG-Telefunken's 80/20, 80/40 and 80/00 process control computers (October 25, 1979).

3M's last chance in the office?

OFFICE products firm 3M is facing its last chance to get into the electronic office market says a US report. Meanwhile the company has launched in the UK a digital facsimile transceiver capable of transmitting an A4 page in under one minute.

Called M9600, it operates closely in accordance with the expected International CCITT Group 3 recommendation for digital transmissions of under one minute.

At £8,990, the transceiver is about five times the price of 3M's M2346 launched in Europe 18 months ago. The firm says it is cheaper to use for over 50 transmissions a day within one country or 14 internationally.

Facsimile transceivers were still too expensive to replace the postal service, said 3M's market development manager Mike Cook, but the UK market was currently growing at about 22% a year.

Siemens boost

SOFTWARE to enable terminals to communicate with both Siemens and IBM mainframes is to be developed by DFVLR, the West German space agency. The system will provide a bridge between SNA and Siemens Transdata terminals, and is regarded as a strong plus for Siemens since the West German government is encouraging its agencies with IBM machines installed to add Siemens machines where they need more power.

Macroprinters Microprices

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For a little more, the Anadex DP-8000AP Apple-compatible version provides the required 96-column printing at 134 characters per second, plus all the features of the DP-8000 described above.

At less than £900, the new Anadex DP-9500 offers up to 220 character line width, with maximum printing speeds of 200 cps or 200 lpm; 150M standard or 650M optional character head life; 11×9 dot matrix capability; 'look ahead' bi-directional printing, 500 character buffer with 2.5K option, full graphics potential; communications control capability, vertical and horizontal tabs.

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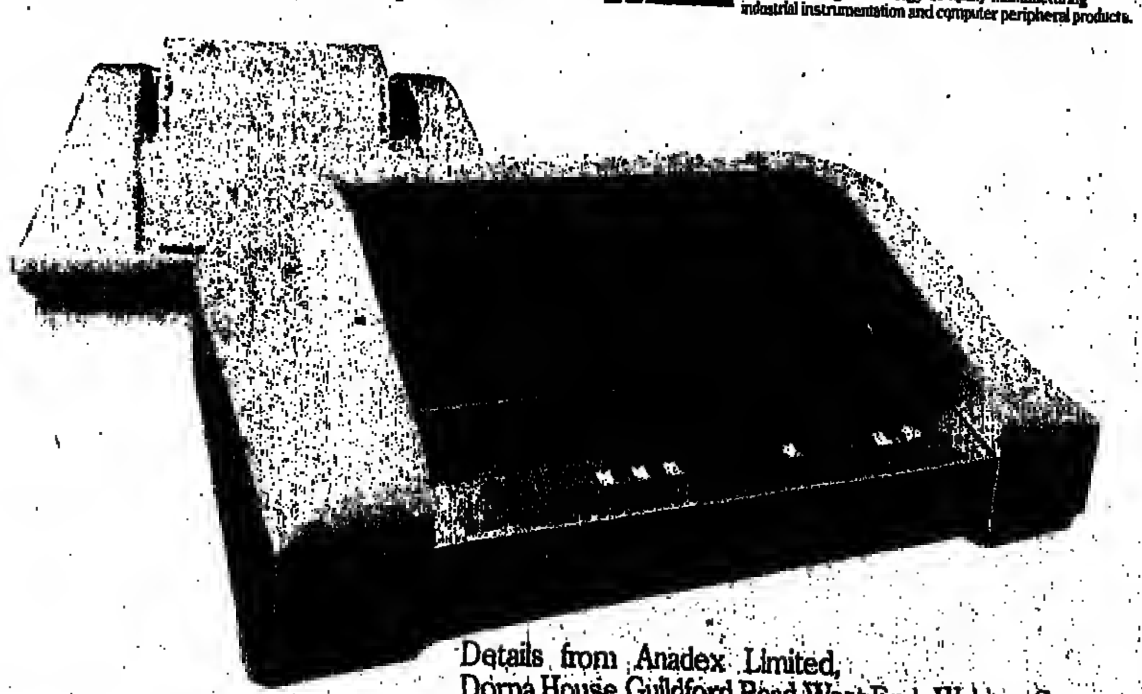

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French terrorists attack computer firms

TWO French terrorist groups are claiming responsibility for attacks on computer companies in Toulouse last week in which one machine was totally destroyed by fire and another was seriously damaged.

First terrorist contact came from a group calling itself Direct Action, which said it had burned stored computer programs and sabotaged a computer at Philips Data Systems' office in Toulouse because it was being used to process information for the French intelligence service and armed forces. Philips has denies this.

Direct Action also claimed that it had carried out a second attack on CII-Honeywell Bull's office in Toulouse for the same reason. A 61/DPS system and what CII described as "a lot of paper" was destroyed by fire during this incident.

Police investigating the two incidents believe that they are linked but are less certain that Direct Action was responsible.

Instead, a second terrorist group calling itself Clodo, the Committee to Liquidate or Neutralise Computers, which has also claimed responsibility for the attacks, looks a more likely candidate. It is believed to have given sufficiently good descriptions of the two computer company offices and their contents to convince the police of the authenticity of its claim.

In a message delivered to the newspaper Liberation, Clodo said: "We are workers in computing and therefore in a good position to know the present and future dangers of computing and telecomputing.

"The computer is the favourite tool of tyrants. It serves to exploit, to control and suppress."

The Toulouse police also believe that Clodo has been keeping local IBM offices under surveillance since the beginning of March.

Briefing

GEC delays cash for Inmos

A REQUEST for general information about Inmos has been put to the National Enterprise Board by GEC, and talks between the two will go ahead when it is received. According to the Department of Industry, GEC's interest in Inmos is one reason for the government to delay further its decision about the second £25 million tranche.

AXE for Ireland

L.M. ERICSSON has confirmed that it has received orders from the Irish Ministry of Posts and Telegraphs for its AXE telephone exchanges (CW, March 20) to be installed at the rate of about 50,000 lines a year over a five-year period starting in 1982. The company's plant in Athlone will be enlarged to handle the contract, and training of additional software designers and programmers has already begun.

Datasaab talks?

TALKS terminated in January between ICL and Datasaab on an OEM agreement for Datasaab's banking and Alfaskop display terminals have given rise to speculation that the Swedish company is up for sale. Datasaab denies this, although a possible equity stake was discussed at the talks.

Troubled issue

WE apologise to our readers and advertisers for the absence again of some regular features and for the reduced news coverage in Computer Weekly. The problem was caused by circumstances beyond our control.

Univac, Honeywell reply to System 38

UNIVAC and Honeywell have chosen the same week to launch their offerings for the small mainframe market of the 1980s. The Univac System 80 and the Honeywell DPS 4 join the IBM System 38, ICL ME29 and Burroughs B1900 in this market.

Each manufacturer is offering considerable advances in easy-to-use software and low-cost hardware which liberates the computer from the hermetically-sealed air-conditioned environment. Of the five suppliers, IBM is on its own in not providing its existing users with a fully compatible system.

Upwards compatibility with the BC/7 and the facility to run all the new software on existing 90/25, 90/30 and 90/40 hardware at no extra charge are the key features of the Univac System 80.

The new 16-bit System 80 processor is based on Emitter Coupled Logic, a fast technology unusual at the lower end of the market.

Two models, 3 and 5, are offered, the 3 matching the power of the 90/30 and the 5 offering 55% more power, the difference being that the smaller model has 16K 32-bit words of microcode and the larger 10K 64-bit words.

Hardware improvements include the addition of more intelligence in peripheral controllers, channels, line controllers, and the introduction of a main storage processor and work station controllers.

Two new disc drives, a 118-megabyte fixed device and a 72-megabyte exchangeable drive are offered, with one of the fixed

● Turn to back page

Mike Lunch, marketing manager of Texas Instruments' European Consumer Division demonstrates the company's talking home computer, which is described in more detail on page 11.

2900 users form Euro club for all makes

A EUROPE-WIDE society for users of all types of computer, called the European Computing Club, has been set up by the organisers of the 2900 Club. The latter already has a handful of members from other parts of Europe and its membership is not restricted to users of ICL 2900 machines. It is intended to be genuinely pan-European and not based on one manufacturer.

The chairman of the 2000 Club, Alan Boyce of Trust House Forte, told Computer Weekly that the first meeting of the European Computing Club would probably take place in about a year, probably at Munich. One likely topic to be covered would be trans-border communications, a subject thought to be of interest to a Europe-wide delegation.

Boyce stressed that the new club had no links with the Conference of European Computers User Associations, CECUA, of which the UK member is the National Computer Users Forum.

CECUA is very much a political body, being recognised by the EEC Commission as the official mouthpiece of computer users in the EEC, while the European Computing Club will avoid political involvement, according to Boyce.

Meanwhile, the 2900 Club is still going strong and has just changed its status to that of a limited company. The next meeting will be on October 0 in London when subjects to be discussed will include linking ICL machines to other makes of computer.

ANNOUNCEMENT
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Following recent coverage in the press on the demise of HPAC Limited, we wish to assure our clients and the industry in general that there is no connection between us and HPAC Limited.

The similarity of company names stems from the fact that "HPAC Limited" was the name adopted by the original Hugh Pushman Associates (Compilers) Limited when they were divorced by us as a subsidiary over two years ago. There has since been no financial, marketing or any other real links between the two companies.

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Small firms plan to fight US dominance

AN association of European manufacturers of small computers, peripherals and software products has been formed to help fight off US and Japanese competition, to try to equalise trade barriers with the US, and to make co-operation and trade within Europe easier.

Called the Association of the European Independent Informatics Industry, the group is being launched next week at Hanover Fair with the sponsorship of the European Commission.

Firms from six European countries have already joined including, from the UK, Data Recording Equipment, Ferranti, GEC Computers and Plessey Telecomms and Office Systems. The existing French and West German associations of firms in this field, which is becoming known as "peri-informatics," have joined.

According to the association's treasurer, one aim is to try to persuade the US to drop or modify the Buy American Act which prevents foreign companies from tendering for government contracts. Failing this, Willis said, the EEC should retaliate with a Buy European Act. The group also hopes to persuade European governments to accept each other's safety standards.

INSIDE...

Computerview on looking abroad	2
Letters to the Editor	2
Voice input moves	3
Downtime by Chad	4
Glib's Mythodology	4
Calcomp drops IBM suit	5
Software File	6/7
Puzzler	8
People and Events	8
Op Spot	10
Micro News	11
ICL developments	24

JOBS: PAGES 12-23

Yoghourt goes better with chips

"The savings and opportunities provided by the introduction of our new system are enormous". That's the view of Fred Finlayson, Manager of Management Services with Express Dairy Foods. The new distributed processing system is one of the most ambitious in the country — with a total of 27 minicomputers serving 13 factories and 27 distribution depots. It will help Express get more dairy goods — like its Eden Vale products — to the right place at the right time.

Data Logic is implementing the project under a turnkey contract. That means software development, supply of computers and project management. It even, in this case, meant the development of special communications hardware based on microprocessors, for a more economic data network and fewer transmission errors.

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John Kavanagh 01-261 8033
Deputy Editor
Tony Higgins 01-261 8686

Advertisement Manager
Harry Hutson 01-261 8359
01-261 8603

Class Ad Manager
Brian Durrant 01-261 8597

Publishing Director
Dr J. A. G. Thomas

Editorial Director
Chris Hipwell

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COMPUTERVIEW

'Go, and do thou likewise'

IF the British sometimes find it difficult to understand the French, the Americans find our neighbours across the Channel equally impenetrable.

The effectiveness of France's protective policy with regard to the computer industry is underlined by a hurt and baffled piece which appeared in the Wall Street Journal last week.

In it an IBM spokesman comments that the company's share of the French government market has declined from 37% to 26% over the past five years and attributes this to government support for CII-Honeywell Bull. He goes on to say that no protest has been made to the government, since "as they say in the French Foreign Legion, things could always get worse."

Companies are quoted as saying that French government interference is extremely arbitrary, some deals being allowed to go through while others, apparently similar, are blocked.

Most striking is the view attributed to the head of Univac, Jacques Dumas, who says that the best course for US companies seeking a French base is to become a minority partner in a joint venture with a French company, in which case they would qualify for grants, cheap loans and subsidies.

"It's better," he says, "for an American company to get 49% of the profits and dividends than to be shut out of the market entirely."

That comes pretty close to being a counsel of despair — and it comes from the head of the one company which has successfully sued the French government for interfering when a steel company wanted to buy Univac and was forbidden to do so. Univac picked up a $1.2 million cheque for damages.

Yet the US government does not seem to have taken any retaliatory action: which European country exports the greatest value of computers to the US each year? That's right: France, with the CII-Honeywell Bull Level 64.

It is also noteworthy that since CII-Honeywell Bull was formed in 1976 it has elected to manufacture the Honeywell Level 6 minicomputer and Level 66 and DPS 8 mainframes in France, whereas Honeywell has yet to start manufacturing a significant product of CII-Honeywell Bull origin in the US.

Clearly ICL is at present doing far too well for a full-scale partnership with a US company to be appropriate, but the British minicomputer industry might well have benefited from a direct US link.

There is one area where Britain has little to learn from the French, and that is foreign investment.

It is fashionable in some quarters to regard foreign investment as the work of the devil, stealing capital and jobs from the British work-force. That this need not be so is amply demonstrated by two British companies, ICL and Racal.

In 1976, ICL acquired the international operations of Singer in one of the best foreign investment deals yet made. The company has since installed more System Ten computers than Singer did, and in about half the time. And the vast majority of those sales, a large proportion made overseas, were filled with System Ten computers made in England. Had ICL not made the investment, the chances of those computers being built in the UK were almost nil.

The company sensibly still builds the smaller 1500 in the US, as a means of demonstrating its commitment to the largest computer market in the world, and in order to have some kind of entrée to US government business, effectively quarantined from imports by the Buy American acts.

A year or so later, Racal acquired Milgo Corp of Florida, and has just announced that Milgo products are to be built in the UK — 23,000 modems in the first year. There is very little likelihood that these devices would have been built in the UK had not Racal taken over Milgo.

Far too much time and energy is wasted in the UK on reiterating sterile dogmas. The only sensible reason for doing anything in a particular way is because it can be demonstrated that it works. The French experience, the achievements of ICL, of Racal are only three of scores of blueprints for success which exist. The Biblical exhortation "Go, and do thou likewise" seems appropriate.

LETTERS to the EDITOR

Flying the US flag

WHAT staggering news the British National Enterprise Board supports financially a US based company from New York, QI (CW, March 27), when right on the doorstep in good old Middlesex is a small private enterprise company actually finding its own cash, to make an "almost British" range of nine dual-disc, Z80A, 64K microcomputers complete with a daisy printer, and all-British business software for under £6,000.

So we only supply the UK Atomic Energy Authority, universities, and businessmen, and are not yet selling to NASA. But what magic is there in that?

We, too, have a central disc store. We also have multi-user software, and a portable suitcase microcomputer with a flat screen, as well as packet switching networks with protocol converters for any machine to communicate with another.

Unfortunately we are all-British, without the glamour of New York. We don't ask favours or sell short. We appear at Compec once a year and support all our customers for the rest of the year.

The QI news makes it almost worth considering joining up with a US glamour name and just forgetting all about "getting it going in Britain."

Can somebody just tell me why entrepreneurs are trying, when the NEB just keeps up imports?

A. B. CLARKE
Managing director
Haywood Electronic Associates
Northwood, Middlesex

Work together

I WOULD like to endorse the comment by C. H. Sayer (CW, February 28) that auditors and DP professionals should work together in this important area.

The Institute of Internal Auditors is anxious to contribute and to co-operate in this important field of computer audit. The Institute's London District held a joint seminar with the British Computer Society's audit-by-computer group last month on the subject of current computer audit topics. The meeting drew a record attendance of members and non-members, registrations totalling up to 194 persons. We hope it will be the forerunner of closer co-operation in the future.

It is clear from the response to this seminar that there is a widespread seeking for knowledge on computer auditing, and the Institute of Internal Auditors will certainly be striving to make its mark by doing all it can to meet the needs in this important area.

HAROLD HALSEY
Chairman, London District
Institute of Internal Auditors

Impact of Databank

I REFER to Stephen Bell's article on New Zealand's Databank bank system (CW, January 10) and the comments subsequently made in your letters column by J. D. Driver (CW, January 24), about the New Zealand Post Office's savings bank terminal installation.

Unfortunately it has not proved possible to establish the authenticity or otherwise of the "source close to Databank" on which the latter's conclusions expressed in Driver's letter are based.

The New Zealand Post Office is certainly to be congratulated on the success of its installation. However, a meaningful comparison of cost per transaction would be difficult to achieve. Databank supports a major trading bank environment covering a wide spread of financial activities, of which savings bank support similar to that provided by the Post Office represents only a small percentage. These activities include cheque clearing and money transfer functions, but more importantly systems supporting current accounts, exchange control, management information at head office and branch level, payrolls, credit cards and other commercial banking requirements, all building up to a comprehensive customer information file. In addition, ancillary financial services such as accounting packages and some timesharing functions are available throughout New Zealand.

The Databank telecommunications network operates 24 hours a day and was designed primarily for the high-speed transmission of bulk data between distributed processors and large central machines handling the databanks. The branch terminals system shares the same equipment and transmission lines and, while large by comparison with other New Zealand entities, represents only a small proportion of the total data moved. Extremely efficient use of transmission facilities is obtained.

Naturally a co-operative venture by strongly competing members will attract adverse comment. Individual instances undoubtedly exist where a go-it-alone policy might appear to yield better returns, particularly in the short run. In a small country such as New Zealand, however, the overall advantages of a co-operative method of processing for the entire commercial banking industry far outweigh the disadvantages.

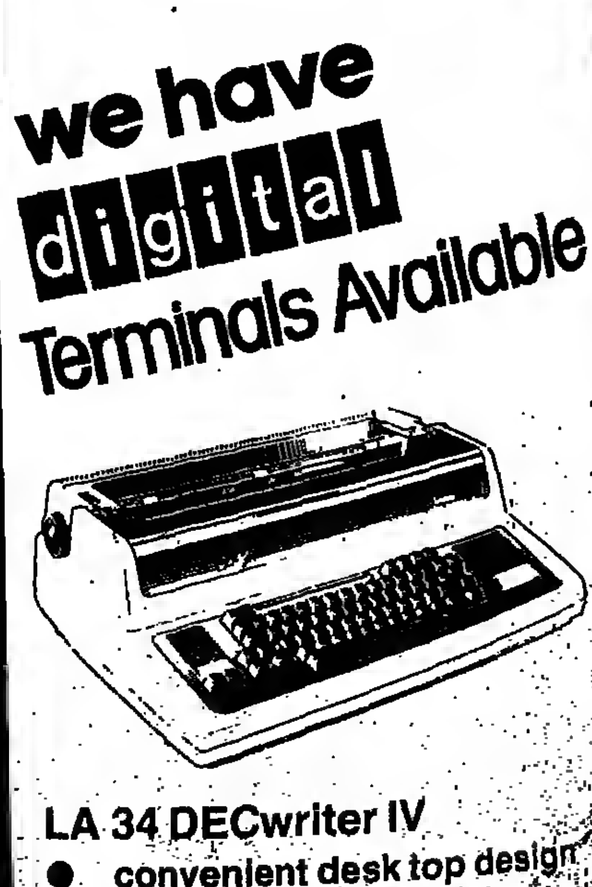
Driver is incorrect in stating that the marketplace is static. Governmental controls have been significantly relaxed in recent years and the atmosphere is intensely competitive.

Furthermore, the existence of Databank has increased rather than diminished competition by freeing scarce human resources from day-to-day processing problems, thus permitting concentration on the marketing and support of individual bank services.

Databank has cut competition in two areas certainly, but not to the detriment of the banks. For instance, it would probably number among its critics the salesmen of some computer hardware suppliers. Co-operative processing yields capital and operational cost savings of significant proportions and permits the adoption of a sophisticated procurement policy which restricts the opportunity for pressure marketing. Nevertheless, hardware is a necessity and the imminent arrival of five IBM 4331s and a 3033 is indicative of the ability of the New Zealand banking industry to remain a leader in co-operative automation techniques.

There is also a reduction in competition for the employment of skilled resources. A large progressive organisation is able to provide excellent training, a variety of projects, well-defined career paths and sophisticated management techniques and this enables Databank to retain a stable and skilled staff of computer professionals.

R. HOGG
Databank Systems,
Wellington,
New Zealand.



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1984 and all that...

THIS week's example of the strange things people say in the media about computers was sent in by J. H. Wassel of Loughborough, who wins £5.

BEWARE OF THE MICRO-CHIP MUGGERS!
Can you imagine what it would be like to go up to get your wages and the handing-over of the money consists of passing your card through a programmer.

Loughborough Echo

EMI pulls out of voice recognition

EMI has completely severed its links with the voice recognition business following the transfer of its shareholding in Threshold Technology to the German company Siemens.

Meanwhile IBM in the US has announced that its experiments with voice recognition could lead in a few years to a prototype dictation machine capable of recognising up to 2,000 words.

The first stage of EMI's withdrawal from voice recognition came last year when it sold its share in Threshold Technology's European arm, EMI Threshold, which then became Threshold International Electronica, TIE.

With about 20% of Threshold Technology, EMI was the biggest single shareholder in the US firm. That mantle has now fallen on Siemens, which is already the Threshold distributor in West Germany, Switzerland and Austria through its subsidiary, Computer Gesellschaft Konstanz. In its role as a distributor Siemens will continue to deal through TIE, which is still based at EMI-owned premises at Hayes, West London.

IBM says that its voice recognition experiments have achieved an accuracy of 91% in transcribing speech composed of sentences drawn from a 1,000-word vocabulary. IBM points out that there are no artificial pauses between words and that they are spoken at normal speed.

Special hardware includes an acoustic processor which samples and digitises the voice waveform 20,000 times a second. Batches of 1,000 samples at a time are manipulated using a discrete Fourier transform technique to produce patterns called spectral time samples. The latter are compared with a set of 200 samples stored during an earlier training session with the speaker. The time needed for the speaker to "train" the system is about two hours although IBM believes that the projected dictation machines might require only 15 minutes' training. Software at the moment runs on a 370/168 mainframe.

Office system from Prime

NEW terminals from Ontel and Beehive, and the Nippon Electric shuttlecock printer, are the hardware additions announced by Prime to make up its electronic office system, which has now been officially launched.

The package, exclusively revealed in Computer Weekly (March 13), is called the Office Automation System and consists of these peripherals and new software, run with a standard Prime minicomputer and fixed or cartridge discs.

Word processing and electronic mail are the main features of the system, with extras such as calendar management, correspondence management, and rough word-for-word language translation using 60,000-word dictionaries held on disc. The system does not handle voice, in contrast to Datapoint's recently-announced competing system (CW, March 6), but this is being worked on for a future release.

Also in the pipeline are viewdata facilities, allowing either the use of the system for private viewdata, or access from its terminals to the public Prestel service. A prototype system doing this is already running at the Prime R&D centre in Bedford.

Since the new office system requires a sizeable mini as its CPU, running under the Primos operating system, a small configuration is not economical, the minimum practical number of stations being about 20. This will cost over £200,000.

The two types of terminals are for typists and managers, those for the former providing text editing using their in-built intelligence, and those for the latter being relatively dumb terminals intended mainly for access to information rather than processing.

Up to 80 terminals can be in use at once. Documents can be sent from one terminal to the "electronic in-tray" of any other. File transfer from one CPU to another via the public network or packet switching is under development at Bedford.

Xerox to enter retail market

XEROX is going into the retail business, with high-street shops opening in six US cities this year selling mainly low-price copiers, but also word processors, home computers, and office equipment both of its own make and of other manufacturers.

Apple computers, Remington Rand typewriters, Hewlett-Packard calculators, and Centronix printers will all be stocked. The centrepiece, however, will be a new copier costing £1,200, aimed at fighting off Japanese competition. Selling through shops rather than direct selling is necessary with equipment in this price range, and this is the motivation behind Xerox's move.

Advice on the planning of small electronic office systems is also to be offered.

Do-it-yourself word processing

A HANDBOOK that provides a do-it-yourself guide to word processing* has been produced by Logica. It costs £100 a copy, but as a consultant would cost about that much for one day's work, this detailed guide could be a good investment.

Written by Alan Patterson, one of Logica's senior consultants, the study moves step by careful step from outlining the factors that should be considered to see if there is a need for word processing and what it can contribute to a business, through the evaluation of various types of systems, to the way to invite tenders.

The changes that the use of WP may impose on a company's organisation and the human factors involved are dealt with and from this study the non-DP executive can learn of the implications and opportunities offered by word processing techniques.

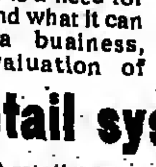
*Successful Word Processing, published by Logica Ltd, £100. Available from Online Publications, Argyle House, Northwood Hills, Middlesex. Tel: (65) 28211.

Micro retail system from NCR

A MICRO-BASED retail system designed for the general merchandise retailer has been introduced by NCR.

Called the NCR 2152, it can be used in three different modes — as a stand-alone terminal with data collected on cassette; as a clustered, shared data collection system with master and satellite terminals collecting data on cassette; or as an online terminal linked to an NCR T-8250 in-store processor.

It costs between £2,250 and £5,500.



Japan in office of future race

Saxton

THE Japanese have joined the race to provide the office of the future in the UK with the setting up in Britain by Matsushita of a new company, Panasonic Business Equipment, to market a wide range of office products separately from the consumer electronics range. It expects to announce soon a hand-held computer for businessmen, including a calculator, translator, memo store, and links to communications and a printer.

A special-purpose small business system is being launched at the Hanover Fair this week. Called the BC-5000, it has an array of 144 function keys on which the user can put his own changeable perspex labels for whatever job is being done.

This unit joins Matsushita's existing range of four small business machines (CW, January 17) which with the other intercom, dictating and facsimile equipment have been marketed until now in the UK by Teletronics.

Teletronics has been absorbed into Panasonic Business Equipment. Its founder John Saxton (pictured above) is managing director of the new firm. The significance of the new arrangement is that the business equipment firm has a direct link back to Japan and does not have to go through the National Panasonic hi-fi and television group.

The hand-held computer is being produced by a new division of Matsushita which has already come up with a hand-held translator. This can store 1,000 words of three different languages, and up to 48 simple phrases. Another new product to come later this year is a packet data entry terminal called Telecommander.

Panasonic will be selling entirely through distributors, and the Curry's hi-fi chain may be one of these.

Datapoint rescue for troubled Inforex

SMALL systems and networking specialist Datapoint has reached agreement in principle to acquire the troubled key-to-disc manufacturer Inforex. The Burlington, Massachusetts company operates at present under the protection of Chapter 11 of the US federal bankruptcy laws.

Although the parent company is in trouble, the eight European Inforex subsidiaries, which contribute about half the company's turnover, are profitable, and under the agreement, Datapoint has an option to buy these rather than an outright commitment. However if Datapoint did buy the European subsidiaries it would call into question the present arrangement under which Datapoint products are marketed in Europe by associate companies of TRW Corp, such as Ventek in the UK and Matra Informatique in France.

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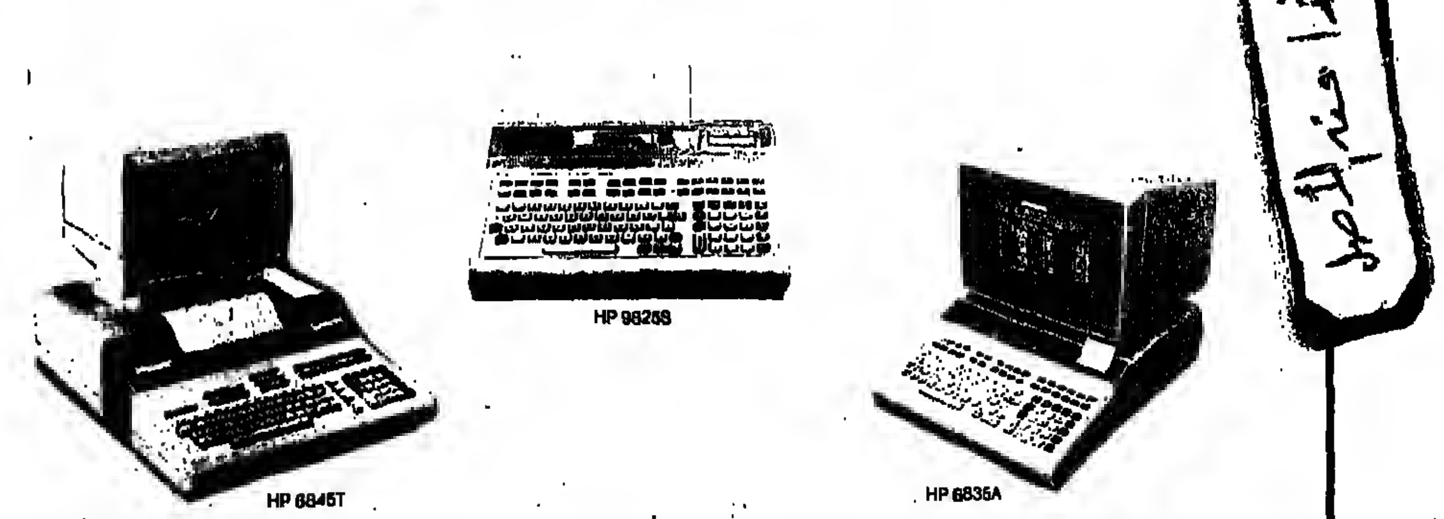

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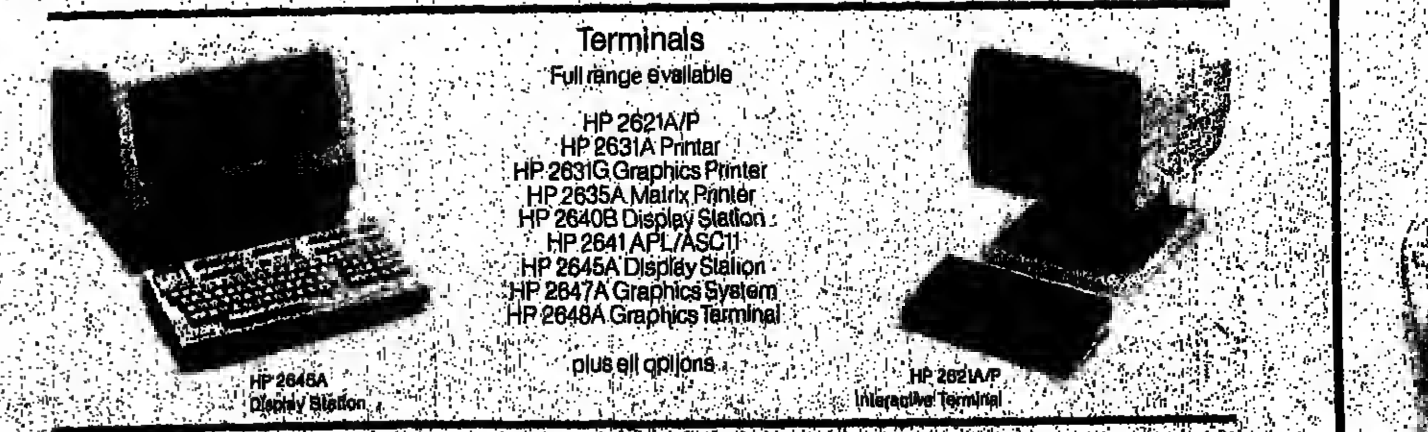

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Downtime

by Chad

Twisted comms

WE are all in the information business, right? Communication is what computers are all about, agreed? Then why do you suppose so many of our colleagues seem to treat writing as a sort of latter-day Battle of the Somme?

I publish an occasional column of gems of obfuscation, but for a long time I haven't seen anything as baffling as this piece, sent to me by Mike Taylor of Stewart Wrightson Management Services. It is from International Business Equipment, and is by one Linda Tilton, a vice-president of Formut Systems Inc. of Chattanooga, Tennessee.

Word processing centres have growing pains . . . There are five principal causes of growing pains individualism in operators, coordination of machine models, originator-operator radio, personnel turnover and expansion of boilerplate. When the centre is small, these areas can be handled informally and solution shared verbally. Later, the need to impose discipline and communicate efficiently becomes necessary.

I am glad to see from the last sentence that Ms Tilton agrees (I think) with the principle of what I say, even though she does not practice what she preaches. Let me say right away that "expansion of boilerplate" is not as obscure as it sounds; she is not talking about trouble with the central heating. Boilerplate letters in word processing jargon are those made up of pre-stored standard paragraphs.

What really baffles me is this "originator-operator radio." Do you suppose it has something to do with the typists playing transistors while they work? Have we got pirate word processing centres with that sinking feeling like Radio Caroline?

"Welcome aboard Spasm Computers — would you like a watch or a cheque as your leaving present?"

By any other name

READERS may sometimes have been puzzled at the way IBM code names for forthcoming products mysteriously change and evolve. For example, the Whitney megajumbo disc drive is now confusingly being called Coronado by the cognoscenti, while the Intrepid streaming tape drive has changed to Ocatillo. The four or five models of the H-series, or should I say, Adirondack, have had at least ten different model names Iroquois, Marcy, Sentinel . . .

I can now reveal to Downtime readers that the reason for all this confusion is really quite simple as soon as an IBM product code name leaks out and starts to appear in public print, the company's resident spoilsport goes and changes it.

Now that that fascinating fact — revealed by a former IBM insider — has also leaked out, the said resident spoilsport will have to put in a spot of overtime working out a new rule to replace the one I have just stated.

Spooky

A READER, Alex Goodoll, has pointed out to me this job advert in The Observer, placed by Westinghouse Electric Systems Software Engineers. Applicants should have a degree in Electrical Engineering and appropriate experience . . . . Other technical degrees such as Applied Psychics will be considered.

Mr Goodall comments "If such appointments are at all commonplace, it could explain the irrational behaviour of many computer systems."

GILB'S MYTHODOLOGY

Towards a natural menu-driven language...

Tom Gilb is an independant consultant, lecturer and author on computing topics.

I WOULD like to share some interesting results of recent IBM research into programming and program design. Here I can give a brief idea of the many ideas and their background, but the report is available on request.

The one I refer to here is Lance Miller's Behavioral Studies of the Programming Process (IBM RC 7367, 72 pages). The research was performed at the IBM Thomas J. Watson Research Labs in New York by a large research team.

To get some overview first: the report has something to say about increased naturalness of the person-to-computer interface; the effectiveness of various logic structures in logic design and programming — effectiveness for understanding by people; new types of program maintenance documentation; and automated aids for design specification.

The research was funded by the US Office of Naval Research's engineering psychology programmes. Let us, for the purpose of this column, concentrate on the results and recommendations.

"The most significant finding from the command usage analysis was that text-editing commands accounted for over three-quarters of all the commands issued . . . This might suggest that much of the editing is due to correction of errors which more powerful language analysers could detect and help pinpoint accurately.

"We recommend that 'semantic checking' facilities be developed for use within language processors to aid in the detection of these conceptual errors, paralleling the facilities for detecting syntactic errors."

The study ascertained that "control specification" — that is program decision points — are a "high-probability difficulty factor".

They tested a number of alternative methods of expressing program control being made in the computer sciences literature in favour of the IF (then ELSE) structure. "We found that this was the most difficult technique to learn and to use correctly." The constructs found superior were called BRANCH (one dimensional lists) and FLOW (graphical specification).

Next a "PROCEDURE TABLE", similar to the above mentioned BRANCH structure, was tested. Its structure is "similar to a (90-degree rotated) decision table."

Even though "participants experienced difficulty in using decision tables" the PROCEDURE TABLES' performance was found to be significantly superior to that with the other types of control structures, with perfect performance found in almost all conditions over all problems, and further the provision of this tabular structure was of key importance in assisting performance (see Table 1).

The Millar report recommends "that a structured technique like the procedure table be used for program coding" under certain conditions which they "estimate that a large proportion of the programming tasks in businesses, governmental services, and the armed forces, would meet."

They also note that a "menu" of conditions should be provided by the system, rather than allowing people to specify conditional logic in their own terms directly.

LABEL	CONDITIONS	ACTION(S)	GOTO
A1	TEMP TOO LOW?	PUSH "HEATER ON" AND WAIT 1 MINUTE	A1
	———	PUSH "HEATER OFF" AND WAIT 2 MINUTES	A1

Table 1. The procedure table concept.

The reason for this was the discovery that many errors were due to natural human logic specifications which could not be correctly interpreted by the relatively inflexible database query systems or compilers.

The menu is a way of informing people about valid language constructs, without training them in advance, and without trying to solve the problem of all frequent human variations of logic specification.

Moving into the sector of "natural language programming and communication" the researchers discovered that people specifying their problems for computer solution, even half of the trained programmers involved, "were more concerned with data manipulations than with control factors, preference for aggregate data operations rather than iterative, for example, 'Find all those who . . .'"

To make a long story short, contemporary program logic, such as structured and indented GOTO-less algorithms, are not the natural way of expressing program logic.

A six-level indented structured program was more naturally expressed as: "PACK LARGE RED DECORATIONS 12 TO A BOX. MAKE UP A TOTAL OF 200 BOXES. STOP AT 5:00 IF NOT FINISHED. BE SURE TO PACK ONLY THE UNBROKEN ONES."

Their conclusion is that "a language interface based on a natural but considerably restricted syntax and lexicon might well be an acceptable and preferred alternative to the present programming-like interfaces."

Database inquiry languages were examined as well as procedural languages and much the same conclusions about language were reached. That is: more natural menu-driven languages are necessary.

A new section of the report is Investigation of Program-Design Behaviour. From my "Design by Objectives" viewpoint I was pleased to see that Miller and colleagues were able, to a point, to make the distinction between goal setting, functional application specification, and technical design specification, as well as logic design itself.

On the other hand, the conceptual framework left much to be desired from my point of view, since one of the recommendations was further study of a number of popular design methods (key names: Mills, Myers, Yourdon, Teichroew) in such a limited context that I suspected that Miller et al did not recognise that these are, at best, fixed methods for logic specification and delineation.

Rarely do any of them address fundamental design issues at higher levels of architecture, such as the problem formulation and environmental and technique attributes already identified by Miller as fundamental to the design process.

This confusion between systems architecture in general and logic specification, according to fixed strategies, is widespread in our profession at the moment. Miller and his colleagues are almost forgiven for their temporary lapse in mentioning logicware specification techniques under such a broad heading as Design Philosophies.

Some specific software design aids are recommended. The most interesting suggestion is a hierarchical program editor which is described in great detail and warmly touted as a fundamental solution.

The authors point out that most program and pseudo-code editor systems are essentially sequential in nature, but that a facility for inquiring and modifying indented hierarchical text would "offer the greatest potential for facilitating the design process". They also mention that they have already developed a prototype editor, although it is not optimised.

There is a section investigating behaviour related to maintenance programming which examines the effects of new types of graphic or tabular documentation, to help programmers understand programs.

The favoured solution was a matrix of intra-module interaction, but none of the results was conclusive.

10 years ago

From Computer Weekly of April 16, 1970

A FURTHER setback to the hopes of European co-operation in the computer field occurred when Siemens and AEG-Telefunken said they would be setting up their own co-operative venture. . . . SE Labs launched a range of alphanumeric video terminals after a £1 million investment in the project. . . . The Northern Ireland Ministry of Finance signed an order worth £320,000 for a second ICL 1904A with random access. . . . A new UK firm, Database Ltd, formed to make and market small computer systems, was a subsidiary of import and export merchants William Jacks and Co. . . . The trade association Cosbs decided to form a section for software houses. . . . ICL had won 20 more orders for 1900 and System 4 kit from local authorities during the previous two months.

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Calcomp throws in anti-trust towel

AFTER nearly seven years of struggle, Calcomp has effectively thrown in the towel in its anti-trust contest with IBM. Calcomp's new parent company, Sanders Associates, has decided not to appeal to the US Supreme Court against last year's decision by the Ninth Circuit Court of Appeal that confirmed the verdict in favour of IBM passed in the original trial more than three years ago.

The Calcomp case was originally filed in October, 1973 and became the obsession of Calcomp's chairman and chief executive of that time, Lester Kilpatrick.

The case came to trial in the Los Angeles Federal District Court in November, 1976 but three months later presiding judge, Ray McNichols, directed the jury to accept an IBM motion that there was no case to answer.

Calcomp's $300 million action had charged IBM with unlawful monopolistic behaviour and involved the IBM compatible peripheral market which was a major source of business for Calcomp in the early 1970s.

Following Calcomp's defeat Kilpatrick was voted out as chairman (CW, April 21, 1977). Last November he began an action to stop the takeover of Calcomp by Sanders under the terms offered by Sanders, but failed to stop the acquisition which was completed on February 20.

Calcomp is now mostly devoted to computer graphics having dropped out of the IBM compatible peripheral business some years ago and having sold its operation manufacturing big OEM disc drives to Xerox.

Calcomp dramatically extends the range of graphics products already manufactured by Sanders Associates.

Sanders dropped its own $255 million anti-trust action against IBM early in 1977 in return for a $10 million development contract from IBM. The Sanders case charged IBM with damaging its one-time subsidiary, Sanders Data Systems, by temporarily withdrawing support for 2260 video terminals.

IBM's first major anti-trust victory was against Telex five years ago and in 1978 the Memorex action against IBM ended in a mis-trial after the jury failed to reach a unanimous verdict. The judge then issued a directed verdict in favour of IBM.

Systime moves into new Dublin offices

Systime's marketing company in Ireland has moved into new Dublin premises which were opened earlier this month by the director-general of the Irish Management Institute, Ivor Kenny. He is seen here flanked by the two top men at Systime, managing director John Gow (left) and chairman John Parkinson. The new premises will house 20 staff whose activities will include supporting the 14 customers picked up by Systime in Ireland since it set up there two years ago. Customers for Systime's turnkey systems include the Irish Times and Shell Chemicals.

Lottery boost for Burroughs

THE French Loto National, a division of the national lottery, has given Burroughs one of its biggest European orders. Two large-scale B7800 mainframes are to be installed, one in Paris and one in Marseilles to capture "jeux" as they are made in real time. Loto National is a gambling game in which the player buys a card, writes down his own numbers and hands it back to the seller, usually a tobacconist.

Special terminals are to be developed by CSEE, Compagnie de Signaux et d'Entreprises Electriques and, if a pilot project with 100 terminals proves successful, it is planned to equip all 8,000 points of sale.

Speech I/O 'will soon be widespread'

HOW would you feel if the only way you could communicate with others was to type letters and watch them appear on a display? This question was posed by Eric Coren, vice-president of Integrated Computer Systems, when introducing a four-day training course on speech recognition and synthesis. The course opened in the US this month, and moves to Europe in May.

Coren added that people tolerated this with machine communications because machines were fairly new and not very common, but progress in three areas in the last three years was beginning to make voice input/output available, and it would soon be widespread.

The three areas Coren mentioned were improvements in pattern recognition and digital signal processing; VLSI technology and the understanding of speech recognition and synthesis techniques.

The course, aimed at design engineers and programmers, costs £470. It covers the techniques involved such as digital signal processing and pattern recognition and also reviews currently available hardware.

General Electric, Philips and General Motors are among the firms which have asked ICL for courses in this area, and several universities, IBM and Texas Instruments have advertised for experienced voice research workers.

Bell laboratories has a system whose trial applications include an automated information service. Quasar, the consumer electronics division of Motorola, plans to launch by the autumn a microwave oven which will speak to the user.

Allen Bradley and Cincinatti Milacron are developing voice synthesis systems to enable machine tools to make announcements.

Talks between Texas Instruments and General Motors may result in "autocratic autos" synthesising such remarks as "Are you wearing your seat belt?" "Aren't you driving a little fast for these weather conditions?" and "What's that I smell on your breath?"

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SOFTWARE FILE

Ansi looks at real time and graphics for Fortran

THE technical committee for Fortran under Anxi X3J3 is to consider real time and graphics applications as part of the Core Plus modules scheme for the language.

Links with US and international committees involved in real time Fortran applications continue and a task group for multi-tasking is to be formed.

It will work on standards in the process control area in close co-ordination with the Instrument Society of America and the European Workshop on Industrial Control Systems. There is also to be a formal link between the committee and the Ansi technical committee on graphics.

The next Ansi Fortran spec is expected in 1985. Anyone interested in any of the areas mentioned above should contact Loren Meissner, CSAM-50B, Lawrence Berkeley Labs, Berkeley, California, 94720, US.

Puzzler

1	2	3	2	1
3	4	5	4	3
2	5	2	1	4
4	1	3	4	5
2	5	1	5	3

THE problem here is to slice the square into five five-cell pieces, such that each piece contains all five different numbers. All divisions must follow the grid lines, and each piece must be "properly" formed — ie cells joined at one corner-point only are not allowed. See page 22 for solution.

On the subject of consecutive squares (Puzzler, March 20), J. R. Heise makes the point that the smaller of the two square roots involved can always be determined simply by dividing the difference by 2.

● Puzzler is blushing with embarrassment. In last week's problem, involving the relocation of a series of counters his fingers stumbled on the typewriter and some of the instructions were left out. The third sentence should have read, "Each move must consist of picking up a counter, moving it left or right over exactly three other counters, which need not all be in the same cell, and finishing in an empty cell." Sorry.

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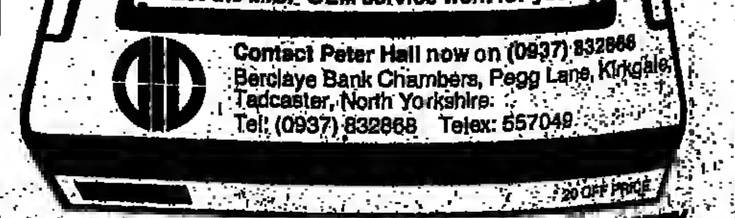

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SUPPLIERS TO BRITAIN'S COMPUTER INDUSTRY

by Claire Gooding

New aids for finite element analysis

THE technical computing bureau SIA and the University Computing Company have both announced extensions to their facilities for finite element.

SIA recently released a new version of its Finite Element Modelling and Analysis Language for Engineers, Female, designed to act as a interface between the engineer and the analysis package so that models can be defined and results analysed, and finally integrated into the design procedure.

Among the new functional modules added to the Female library is Automesh, which creates three-dimensional meshes from simple point and line definitions.

At the same time SIA released Update 67 of Ansys, a system for structural and heat transfer analyses which can be used through Female, which now includes a procedure which calculates critical loads and Eigenvalue buckling analysis. The systems use Tektronix and Calcomp graphical output facilities.

The UCC products Femgen and Femview are pre and post processor programs in the structural analysis field which have just been made available on UCC's European network.

Femgen is a finite element mesh generator using the "top-down" approach to analysing a structure in terms of points, lines and surfaces. Femview provides aids to visualisation and helps to interpret the volumes of data produced by finite element analysis.

Amdahl boost for I.P. Sharp

THE APL time sharing service provided by I. P. Sharp has been upgraded following the delivery of an Amdahl V6 to replace one of the Amdahl 470/V6-11's, installed only a year ago.

The second V6, installed in 1676, was intended to cater for the company's growth until the spring of 1661. However, increased demand for APL resources in Europe and North America has led to early expansion of what, according to I. P. Sharp, is already the largest APL facility in the world.

The new Amdahl V6 is said to be capable of almost twice the processing power of the V6, and the main memory of the facility has been increased by four million bytes, anticipating further increases in demand over the next year.

Bird's eye view of IBM's System 38

A PRIVATE preview of development software for IBM's System 38 revealed a solidly built system aimed at cushioning the programmer and streamlining operations.

IBM is using 180 System 38s for internal education and application development and demonstration. So far these are the only machines in the UK although original estimates in October, 1978 scheduled first deliveries for autumn, 1979.

However, the delay has given IBM a chance to develop some sturdy and comprehensive software making use of System 38 characteristics such as file handling and database facilities.

Some features of the System 38 were hailed as innovative at its introduction (Software File, November 9, 1978). These included the single level storage in which programs, data files and command files are treated as equivalent objects, and the logical file approach which dispenses with sorting routines. The language supported is RPG III which provides array processing facilities.

Working on this base, IBM has turned its attention to query and security features, as well as providing facilities for debugging and development.

On first sight the query software needs some familiarity with the system for the user to get the most out of it, but still has some claim to the "user-friendly" tag. Users can define fields, default codes and edit codes as required and page between different formats of information selected from the same file on varying criteria with little effort and quick response times.

The real test of the software, however, will come with its delivery to users, until which time performance and flexibility cannot be evaluated.

But there are likely to be few complaints on the security facilities inherent in the software, in which use has been made of the logical file design. Using this, sensitive and non-sensitive fields can be defined by controlling the access mode.

Several levels of security exist within a hierarchy depending on a user profile which defines various areas of authority, protecting sensitive or personal spots and allowing public access to others. Remote and geographical control of screens is included in the "housekeeping" facilities, and messages are not buried in the system but adaptable to suit the user.

Features such as the single level storage, the change in addressing structure from four to six bytes and the move towards hardware-independent architecture are part of a long-term strategy for the System 38. Certainly IBM has dedicated considerable resources in the US to making the software robust and attractive.

Workspace aids for APL programming

APL specialist consultancy Cocking and Drury has introduced three APL workspace aids, WSDOC, CONSCHK and WSSEARCH. In response to a growing demand for APL programming, the products aim to provide the sort of support that programmers take for granted with more explicit high-level languages.

APL's flexibility and conciseness brings its own problems when it comes to debugging and documentation — especially when dealing with programs written by other people, as, according to enthusiasts for the language, APL not only caters for individual flair but encourages it.

Using WSDOC, an existing APL system can be documented prior to modification or maintenance. It lists all the functions and variables in an APL workspace, defining a function and the tree to which it belongs, and if necessary producing a full reference listing.

CONSCHK compares two workspaces and identifies the differences between them, finding functions and variables which are present in both in different forms, or present in one and not the other.

WSSEARCH performs global searches and replacements for given text strings or expressions.

A package consisting of five workspaces including WSDOC, WSSEARCH and CONSCHK is available from Cocking and Drury with full documentation and unlocked code for £1,000 plus VAT and an annual maintenance fee.

First in UK

THE UK arm of Scientific Time Sharing, APL*Plus, is running the first installation of APL*Plus VM on an IBM 3031 at Roneo Vickers, the office equipment suppliers. APL*Plus was made available for in-house use over a year ago (CW, January 18, 1979).

SOFT BITS

Going Forth to win

THE high level computer language Forth was used by Sinar Agritec, winner of the recent NRDC-sponsored British Microprocessor Competition (CW, March 27) to develop both the hardware and the software on its award-winning grain and seed moisturiser.

Forth is a structured programming language which permits interactive programming, and according to the project engineer at Sinar Agritec, speeded the development stage of the project considerably.

THE City-based software house, Harrison Computer Services, has won a contract in the US worth $160,000 to aid in the development of a real time banking system to be installed on a NCR Criterion for a Middle East bank. The contract was awarded by Florida systems house Anncomp Inc.

A SYSTEM written by surveyors and engineers to streamline the job of hand-plotting survey plans and contract drawings is available from Eclipse Computer Services, of Bucks. It runs on a Wang 2200 VP with a video terminal and flatbed plotter, and costs a minimum of around £20,000.

THE shared tape allocation manager STAM marketed by Software Implementation has been enhanced to automate the allocation of shared mountable disc devices at IBM installations. The product aims to reduce human error by relieving operations staff of the task of tape and disc allocation in multi-CPU installations.

UK debut for Aussie system

A FINANCIAL and business control system developed in Australia is to be marketed in the UK by Sunshine Management Services of Birmingham. The system, called Datapac, is available on IBM System 32, System 34 and System 3, and runs in batch mode or interactively on the System 34. It was developed by Business Model Systems, Kangaroo Point, Australia and deals with a range of applications including budget preparation.

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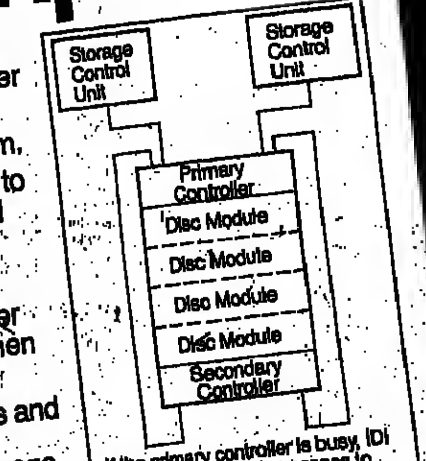

If the primary controller is busy, IDI automatically enables access to the secondary controller. Both primary and secondary controllers can transfer data simultaneously to different SCU's.

PEOPLE and EVENTS

Pike

Windmill

John Collins has joined Data Translation from Tektronix where he was a sales engineer. He will now assume a similar position and take responsibility for the development of the company's sales programme.

Roger Main has been appointed sales manager for DRG Systems Supplies.

Collins

Greengrass

Brian Windmill has been appointed senior applications engineer with Airstream Air Conditioning. He was formerly an applications engineer with Matthews and Yates.

Bob Pike has joined CMC ns a salesman in the company's new business marketing group. He previously worked with Automatic Data Processing.

Liveware File

by Dek

Senior appointments at Data Logic

WITH the restructuring of Dnta Lngic's professional services division, several senior appointments have been announced. This follows the company's acquisition last year of Square One Computer Services.

The appointments include those of Richard Greengrass and Robin Davies who both become regional managers.

Derek Alway, a co-founder of Square One, also becomes a regional manager and Jim Philip is appointed business development manager.

Another co-founder of Square One, Paul Hill, assumes the position of services manager.

Frank Patterson has become major accounts executive with Vydec, part of Exxon Information Systems.

Steve Gardiner has been appointed chief engineer with Base Ten Systems, where he will be responsible for all aspects of development and design engineering. He has been with the company for four years, his most recent position being that of principal design engineer.

Ian Stewart, formerly a salesman with Systime, has been chosen to head the launch of Qantel computer systems in Scotland for General Computer Systems.

DIARY

APRIL 23

The Europenn Commission's System machine translation system. BCS Natural Language Translation Group. King's College, London. 18.00.

Towards a branch-and-bound algorithm for the one dimensional trim problem. BCS Mathematical Programming Study Group. London School of Economics, London. 18.30.

APRIL 23-24

The applications of process computers in the oil and gas industries. BCS Process control specialist group. Waldorf Hotel, London. 10.00.

APRIL 25

Participative design — a constructive appraisal. BCS Human Aspects of Computer Usage Specialist group. Bloomsbury Centre Hotel, London. 00.00.

APRIL 30-MAY 1

IBM CUA Series i group. IBM Havant and Royal Beach Hotel, Southsea. Tel 01-551 1643.

MAY 12

Visit to a computer centre. BCB Cheltenham and Gloucester branch. Details from committee members. Members only.

The future of mainframe computing. BCS East Anglian branch. Red Lion Hotel, Norfolk. 19.00.

MAY 14

Display systems in TV productions. AGM. BCS design group. City University, London. 14.00.

Computers and society. and AGM. BCS Bristol branch. St Vincent Rocks Hotel, Clifton, Bristol. 19.15.

AGM and Sherry party. BCS Edinburgh branch. Heriot-Watt University. Edinburgh. 17.30.

MAY 15

Computer arts review and AGM. BCS Coventry branch. Burnt Post Hotel. Kenpass Highway, Coventry. 19.30.

MAY 21

Interactive programming in Cobol on the IBM 8100. BCS Cohol Specialist Group. Polytechnic of Central London. London. 14.15.

Lowe

Skelly

Honeywell to sponsor concert

THE first performance of a new flute concerto by young British composer Nigel Osborne is one of the highlights of a South Bank concert to be held on May 28. The concert is sponsored by Honeywell Information systems.

Other works to be performed at the concert include Sympony No 22 by Haydn and Fluta Concerto No 2 by Mozart. The concert will be given by The City of London Symphonia conducted by Richard Hickox.

Ian Skelly has joined CMC's technical support division. He formerly worked for ITT.

Kennedy

Gardiner

Andy Lowe has been appointed sales manager for Monotype Communications' new hotel division. Lowe has been involved with many aspects of the catering industry, and while studying for his degree in business administration made a study of marketing strategies of UK electronic companies in association with Butler Cox and Partners.

Neil Kennedy has joined Compeda as computer manager. He was previously systems manager at the Science Research Council.

John Lawson has become data centre manager for GMS Computing. He was formerly in charge of GMS' technical support.

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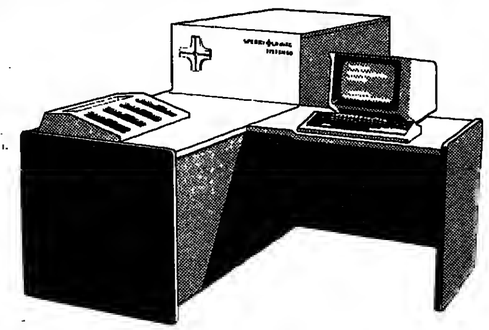

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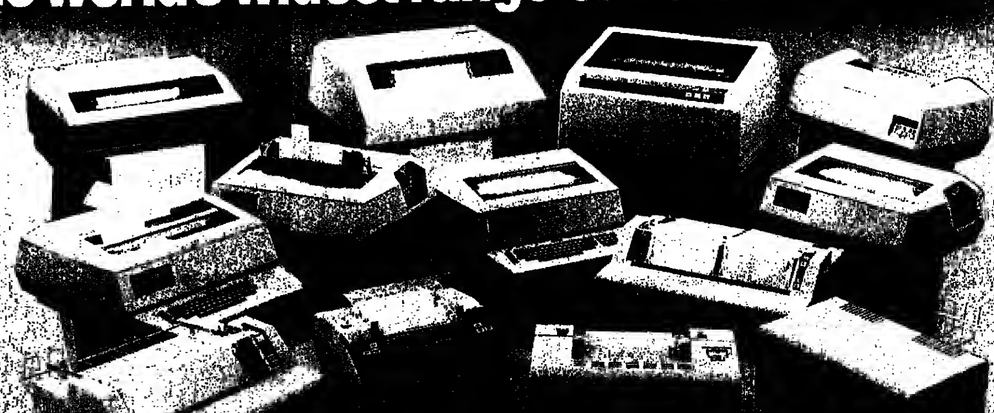

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OP SPOT

by Bernard Allen

Courses that suit both operator and installation

IT is an unfortunate fact of the typical operator's life that he gets very little in the way of formal training and courses.

He is expected to acquire his skills in the computer room by watching and putting questions to his senior and more technically able colleagues.

The typical operations manager isn't much help, either. On requesting some formal training, the operator is told that the site can't afford to give him time off and that the manufacturer's courses don't really fit the installation's needs.

What these managers often fail to mention is that certain companies do run courses which meet the needs of operator and installation alike.

BOC Datasolve, for example, provides a series of courses relating to IBM and ICL hardware and software. Alan Peck, who is head of operations and software training at Datasolve's customer service centre in Old Park Lane, told me:

"The courses are for customers' staff and our own people. Most of the courses run here at the centre are five days long. We usually limit them to 12 students per course.

"We also do on-site specials — one of our tutors will go along to the customer's site to find out exactly what they need. He will then spend a couple of weeks setting it up before going back and running it at the installation.

"Then we do a course for beginners. The students get a week's theory, then spend a couple of days at our Oxford Circus site under the supervision of a tutor, learning how to load printers and mount discs."

In the main, however, the Datasolve courses are aimed at staff with experience of working in operations. On the ICL side, they run a 1900 to 2900 conversion course, 2900 basic and advanced, 2900 system control language, and a 2900 telecommunications course will be available from May.

The IBM courses fall into two categories operations and software. The operations courses lean heavily towards theory, and cover MVS basic and advanced, 370 hardware and software concepts, and an IBM-biased course on TP concepts.

Said Peck: "In the MVS basic operations course we go over the history of operating systems, showing how and why they have developed. We also show how jobs go through the system, exploiting about the reader, initiator and writer procedures, and discuss the use of system commands."

The MVS advanced course covers such matters as the theory of virtual storage, job re-starts, dump cracking and the basics of the IBM Assembler programming language.

"Assembler tends to be the most popular part of the course. It gives the operator a deeper understanding of how the machine works."

The software courses — OS/VS1 job control language, OS/VS utilities and VSM — include more practical work, jobs being submitted via RJE to an Amdahl 470/V6 at Datasolve's site in Sunbury. "OS JCL is our most heavily subscribed course. It includes the punching and running of one, three, five and six step jobs. Generation data groups are included.

"We submit jobs through RJE. The course tutor checks each job before it's submitted to the system."

The centre has six tutors, four IBM and two ICL, who are recruited at technical support and shift supervisor level. In addition to having technical expertise, they must also be able to put ideas across to about 10 people at a time.

Said Peck, "We recruit from the outside as well as internally. Our own courses give us the opportunity for talent spotting if need be.

"Eighteen months or so ago we had trouble finding tutors, but not any more. Now we get people contacting us, asking for jobs. I've got a waiting list of three and they are at shift supervisor level."

Applicants undergo what Peck describes as "a baptism of fire" they give a test presentation under the discerning eyes of experienced tutors.

Said Peck, "Some people are very articulate in a one-to-one situation but dry up in front of a group. Most people rise to the challenge."

Trainee, or assistant tutors, as the new recruits are called, attend any ICL or IBM courses they need, and go on a presentation course run by the British Association for Commercial and Industrial Education.

Chris Turner, an ICL tutor who has been at the centre for some 18 months, told me: "On the BACIE course they tell you to talk clearly, be as natural as possible and make sure the students understand what you're trying to explain."

The assistant tutor then sits in on a number of courses to watch an experienced colleague.

On the first such course the assistant will observe, on the second he may fill in on one or two sessions, and on the third he might take the students for an entire day.

After four months or so at the centre he will carry out a course of his own, probably under the supervision of a senior colleague. He will be made up to the position of tutor after a year or more.

Turner became interested in training during his days in operations at North Thames Gas.

"We had had several senior operators and a lot of trainees, but no one between those levels.

"At first I did most of the training hands-on in the computer room. But later on it became more formalised. I find that teaching is a good way of consolidating and adding to your knowledge."

Peck

According to Turner, the tutor tries to find out as much as he can about the students before the course and treats them as individuals.

"You've got to know each student's level of knowledge and what they hope to get out of the course."

The tutor must keep in touch with what's going on in the industry and does so in several ways.

Peck told me, "Every now and again they spend a few weeks working in an area such as technical support. It keeps them in touch with developments and sharpens their skills."

Nowhere to go at tea-break

"IT was good to see you telling us operators to take as many breaks as possible during the evening and night shifts (CW, February 14).

"The problem is that we have nowhere, aside from the manager's office, to spend such breaks. What do you think of that?"

So writes an operator who works at a small installation. The day and evening shifts present no problems for the operators — they get some food and liquid refreshment in the public house nearby. But on the night shift it's a choice of bring your own food or starve.

In my opinion, it's important that the operators have somewhere to rest and eat their food. It should be as far away from the noise and bustle of the computer room as possible. Why not ask to use the canteen facilities on evenings and nights as well as the day shift?

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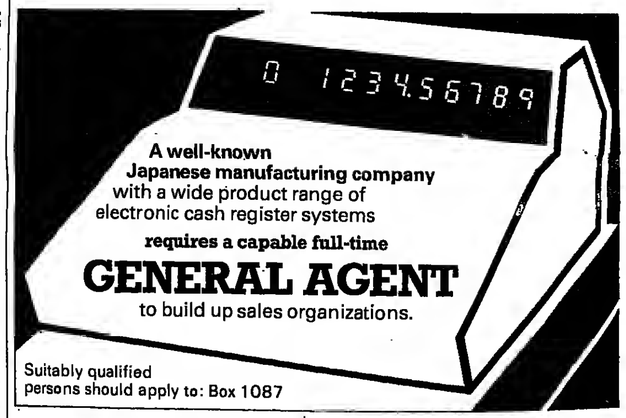

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MICRO NEWS

by Eileen Stainer

Texas introduces a talking home computer

TEXAS Instruments has introduced its talking home computer, taking its first step into what the company sees as the "home information systems revolution." The TI 99/4 microcomputer is planned to "move the mystique" of computing that exists in the consumer market.

Following its initial launch in the US last year (CW, June 14, 1979), the slender 99/4 has now been officially introduced on to the UK consumer market, with several accessories, including the speech synthesis peripheral, and a set of TI Basic software command modules.

These solid state command modules, which cost between £17 and £45 depending on the number of ROM chips required, allow almost anyone to operate the system successfully. Mike Lunch, marketing manager of TI's European consumer division, claims that even children as young as three or four could use it.

Various software projects including meal-planning, health exercises, lessons in grammar and financial planning will be available in the module form. According to TI the complete set meets the interests of the UK market. Top of the list with highest interest value is education, followed by entertainment and personal and home management.

The titles immediately available include Pre-school Early Learning Fun, Beginning Grammar, Number Magic, Household Money Management, Personal Record Keeping, Statistics, Diagnostic, Video Games and Video Chess.

Talking originates from a speech synthesis module which holds a general vocabulary of 373 words. Extensions to this will be available on plug-in modules holding specialist words like engineering and medical terms.

For a basic cost of about £95, sentences are formed from strings of words producing a quality of sound that leaves room for improvement. The first module to use speech, Enrly Reading, will be available soon. Meanwhile the system can be programmed to talk to the user.

Other accessories include an RS-232 interface for £150, which provides two V24 ports each with a programmable baud rate and choice of format. Floppy disc storage consisting of a disc controller and up to three 90K-byte mini floppy drives, will be available in the summer.

For a cost of £990 the system comprises a 14in colour monitor, which can be used as a basic television, and the 99/4 console, which contains 16K of RAM, 26K of ROM storing the operating system, a sound generator and an equation calculator.

An impressive overall effect is created with the 16-colour graphics capability that enables the user to create his own characters and animated displays, and the music and sound effects used throughout the command modules.

TV games Top 20

WAR and sport appear to be Top of the Pops in microprocessor-based TV games. Atari, distributed in the UK by Ingersoll Electronics, has compiled its own Top Twenty of best-selling cartridges on the UK market. Backgammon, Supermen and Video Chess, which have only been available for three months, seem to be catching up quickly.

Ray Brent, Ingersoll's director and general manager, claims that since the company gained the franchise about a year ago, Atari has become a "technocult" in the UK.

Tape interface for Z2-H

INTERFACING to enable the EMI 8800 magnetic tape drive to be used with Cromemco's Z2-H S100 microcomputer system is now available from Benchmark Computer Systems of St Austell, Cornwall.

It enables back-up copies to be taken from the Winchester disc drive of the Z2-H, and provides a capability for off-loading processing from a mainframe on to a remote standalone system.

The tapes are compatible with a wide variety of existing computer systems. Typical price of a system comprising 64K-bytes of RAM, a 10-megabyte hard disc drive, two double-sided floppy disc drives, the magnetic tape drive and printer and VDU peripherals is about £14,000.

NL New from NEWBURY

Smart micro-based Visual Display Terminal Model 7000/7000C

- Teletype compatible
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- CCITT V24 or current loop interface
- Selectable half or full duplex
- Green phosphor display
- Plus XY cursor address and page mode facility on model 7000C
- Single end user price from £495

Matrix Printer Model 8300

- 125 CPS Printing speed
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- ASCII 96 character set
- 80 characters per line
- pin feed platen
- Single end user price £460

All prices include modem and power cables ready to plug in plus free delivery in UK.

Newbury Laboratories Ltd

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Education service

A SERVICE designed to help educational establishments in the purchasing of microcomputers has been set up by Adda Computers of Ealing. Full marketing, systems and engineering support will be provided by a company formed by Adda called Medicom, which is currently developing microcomputer systems for the medical, scientific and educational markets.

The company has already sold systems to Brunel University and Queen Elizabeth College.

Personal software offered

AN Anglo-Dutch microcomputer software group, Microtrend, has been launched in the UK to provide a complete range of products for business and industry, education, home economics, entertainment and the hobbyist.

An initial low-cost, high-volume range of 120 programs has been written for the Pet (8K, 16K, 32K, tape and disc), Apple (up to 48K, tape and disc) and TRS-80 (Level II 16K and above) systems. No support is offered and prices range from £9 to £100.

Software for CP/M-Microsoft Basic systems, Nascom and Compucolor II systems is expected in August. At the same time Microtrend hopes to announce its Microtrim Professional range of parameter-driven software based on CP/M and Microsoft Basic configurations. This will come with complete support and prices will range from £100 to £900.

The company is setting up a dealer network and a few dealerships are still available. The Microtrim range will be available only through dealers.

Software

A PETSOFT exhibition is now available at a cost of £5 for small, medium and large [illegible] Road, Birmingham.

Macroprinters Microprices

Looking for dot-matrix printers costing a lot less than you budgeted for?

Stop looking.

These three from Anadex not only offer lower initial cost, but also provide substantial savings on servicing.

For around £500, the Anadex DP-8000 provides 80-column printing at 112 characters per second, 84 lines per minute; switch-selectable baud rates from 110 to 9,600; 100M character head life; three standard interfaces (RS-232C, current loop and parallel bit); vertical tab, form feed, skip-over perforation controls; adjustable sprockets for any paper size; self-check diagnostic test facility; 1K character buffer standard with 3K option.

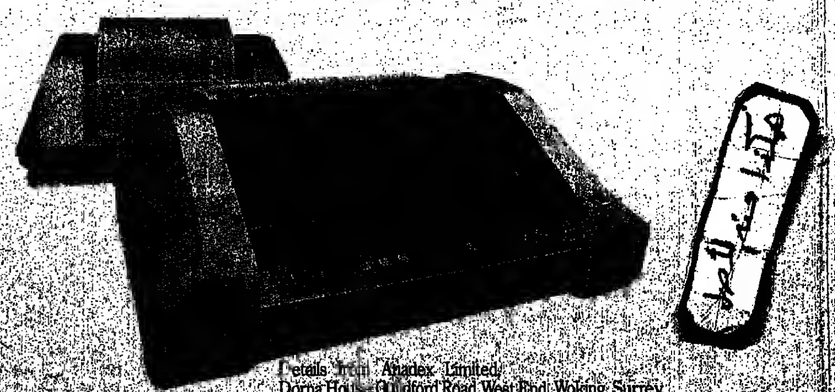
For a little more, the Anadex DP-8000AP Apple-compatible version provides the required 96-column printing at 134 characters per second, plus all the features of the DP-8000 described above.

At less than £900, the new Anadex DP-9500 offers up to 220 character line width, with maximum printing speeds of 200 cps or 200 lpm; 150M standard or 650M optional character head life; 11 × 9 dot matrix capability; 'look ahead' bi-directional printing, 500 character buffer with 2.5K option, full graphics potential; communications control capability, vertical and horizontal tabs.

You won't find a better bargain.

Anadex

Anadex is a high technology company manufacturing industrial instrumentation and computer peripheral products.



Details from Anadex Limited, Dorna House, Guildford Road, West End, Woking, Surrey. Telephone (04862) 6333. Telex 858762 Anadex G.

Appointments
Appointments
THE NEWSPAPER COMPUTER PEOPLE RELY ON
Appointments

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(with a little help from your job)

Your job affects your whole life – not just the hours between 9 a.m. and 5 p.m. on weekdays. Your job affects where you live (or how long you spend commuting). It affects your relationship with your family (can you really put your hand on your heart and say that you've never taken it out on your ever-loving after a 'hard day at the office'?). And, of course, the money you earn dictates what you can or cannot afford to do with your own time.

Our client, a leader in the field of software development, is involved in a far-reaching project which, when complete, will affect the majority of the Western world.

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Real-time software design
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Ring Jack Cowdy, Director, on 01-603 7335, quoting ref. RJ/1168.

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We are offering an opportunity to join one of the leading systems consultancies. These situations are open to candidates who are qualified to degree level. They should have a proven technical record over at least the last two years together with the ability to communicate and utilise technical and supervisory skills to above average standards.

The positions available with our client will include work in some of the following and candidates should have experience in more than one of these areas:

★ Process Control Systems
★ Defence Systems (Military, Aerospace and Naval)
★ L.P. and other O.R. Techniques
★ Simulation ★ Systems Design and Assessment

Your career and expertise will benefit greatly by the company's plans to expand into new business areas. It is important that you are ambitious and prepared to train in new techniques while passing your own knowledge on to your colleagues. Salaries are negotiable and you are expected to prove your worth over the initial period with the organisation to take advantage of the six-monthly merit-based review system.

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SYSTEMS PROGRAMMERS

£9,000 neg.

plus subsidised mortgage, low-interest personal loans, profit-sharing, free lunches, free BUPA, non-contributory pension, over 4 weeks' holiday.

London-based with European travel
Milan Brussels Frankfurt Paris Zurich

Systems Programmers, who will be based in London, are required to join the Technical Development group responsible for software development and implementation for this international organisation's European computer installations. This will involve liaising with internal and external management and investigating, developing and implementing software for the powerful minicomputer configurations at each site.

There will be an element of European travel, probably around 15% of the time, and candidates must be prepared to travel for periods between one day and one week, sometimes at short notice.

The team is currently investigating new systems, which is a particularly interesting aspect of the responsibilities, providing team members with valuable insight into the company's future development.

Candidates must have a sound knowledge of operating systems and should currently earn between £5,000 and £8,000 p.a. The company offers an excellent salary with fringe benefits that can theoretically add over £2,000 to the basic salary.

Contact Jack Cowdy, Director, on 01-603 7335.

IPP Information Processing People

58 Pembroke Road, London W8. Telephone (24 hours): 01-603 7335/6. Telex: 261298

Senior Systems Analyst

Springfields Works, near Preston

Springfields Works is BNFL's Uranium Fuel Centre situated in the Fylde area of Lancashire, between Preston and Blackpool. It produces the uranium fuel and intermediate uranium products for Britain's nuclear power stations and for overseas utilities.

An experienced Systems Analyst is required to take charge of the systems and programming functions of our Computer Section. We operate an ICL 2904 with on-line 7502's, linked to a central ICL 2980. Other mini computer and micro-processor installations are planned for the immediate future. There are also current developments in the use of on-line systems and investigation of data base applications.

The successful candidate will be responsible for the design, programming and implementation of a variety of computer systems and will be required to establish and maintain programming, documentation, testing and user training standards.

Applicants, male or female, should have a relevant honours degree and/or be members of an appropriate professional institution. However candidates who lack such qualifications may be considered if they have training and experience which is acceptable as being of equal value.

Applicants must have completed successfully at least one major project involving on-line and/or data base techniques.

A knowledge of programming, preferably in COBOL, RPG2 or FORTRAN is essential. Familiarity with ICL 2900's would be an advantage and the successful candidate must be able to liaise effectively with management at all levels.

Starting salary will be assessed within the range £7845 to £9050 per annum.

In addition, successful candidates will be eligible to participate in the Company's self financing productivity scheme.

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Send postcard for application form (NO STAMP REQUIRED) to Assistant Staff Recruitment Officer, BNFL (FREEPOST), Springfields Works, Salwick, near Preston, PR4 0XP, or telephone Preston 728262, Extension 8131.

The closing date for receipt of completed application forms is 30th April, 1980.

BNFL

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Data Logic

"For crying out loud, can't anyone design a system properly?"

If you've ever felt that strongly about the systems you're obliged to work with, you could be the man or woman for us.

If you're sick of living with other people's sloppy software design, we can offer more than just an end to your frustration.

If you're convinced that with your guidance things could be done better, and you're itching for the opportunity to prove it, we'll give you that opportunity – and the challenge, responsibility, money and prospects that rightfully go with it.

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It's an issue that we take very seriously indeed, for good reasons. Our business is to produce strategically important airborne radar systems that are built around real-time computers. So corrupt data or faulty response can have drastic consequences.

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An unusual job, certainly. An interesting and worthwhile job, definitely. And, in a new discipline in a growing department in a highly successful company, a job with a future.

Assistance with local authority housing could in certain circumstances be made available.

To find out more phone Chris Hill on 01-953 2030 ext. 3449. Alternatively, write to him at Marconi Avionics Limited, Elstree Way, Borehamwood, Hertfordshire. Quote ref. MA80/18.

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Assembler–Minis & Micros

Systems Consultants and Technical Analyst/Designers with 5-9 + years experience in programming are sought by this leading London-based Systems House and Consultancy. Your career should exhibit a bias towards software or technical computing eg telecommunications, radar etc, and a solid background in Assembler or machine code is essential. The work will be of interest to those currently at the System Designer level, who have either consultancy or team-leadership experience. Familiarity with any of the following fields of expertise will be greatly appreciated: Message/Packet Switching, Compilers and Language Processors, Real-Time Operating Systems, Micros, Communications, Networking or Systems Simulation. You will work from a Central London base, with occasional projects in the Home Counties, and a few opportunities arising for overseas visits.

£7.3-11K

Telecomms.

Our Client, based in Surrey and Switzerland, requires high-calibre Programmer/Analysts with experience in telecomms and message switching on minis. You will have had a sound background in Fortran/Assembler in a manufacturer/systems house environment.

£7K-£15K

Minis–Middx

An established Software/Systems Bureau based in South Middx. is looking for Programmer/Analysts with mini and/or ICL 1900-2900 experience, gained preferably in a financial environment. Knowledge of Basic/Cobol preferred, and preparedness to travel a distinct advantage.

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One of the world's major Software Systems Companies is currently recruiting for two major projects located in Central and North-West London, and employing some of the most advanced technology in the fields of distributed processing, teleprocessing, databases and command and control systems.

If you have experience in these fields, and more particularly in any of the following: on-line VDU's, large 2900's, graphics, inter-computer networks or real-time minis, our Clients will be anxious to hear from you. Vacancies exist at both senior and junior levels, from Programmers, through Analysts and Designers to Consultants.

The work involved will be designing VDU screen formats and transaction phases, and developing a large scale computer network. The positions provide a technical challenge, an opportunity to break new ground. The rewards are commensurate with the Company's international reputation, including BUPA, pension schemes, car schemes, and other benefits.

Salaries £7.5-£11.5K

Financial Systems

Financial Institution (Home Counties) with a wide variety of interests in banking and allied fields requires a Systems Analyst, an Applications Programmer and a Systems Programmer for their IBM 370/148 installation (hardware due to be updated in the near future). The Systems Analyst should have 2-3 years commercial experience in the financial area. Applications Programmers should offer 2 or more years PL/1, preferably with some COBOL. For the Systems Programmer, 18 months Assembler is the minimum requirement, further training will be given if necessary. The benefits of working for this Company include a non-contributory pension scheme, mortgage subsidy, free life assurance etc plus relocation assistance where applicable.

to £8K+benefits

Micros

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Salaries: Negotiable

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Most of the positions are contractual in nature but one or two permanent positions in Germany and France also exist. Interested in exploring the ground? Ring for an informal chat to discuss some of the opportunities.

Contact: Mike Creamer

TIP Software Expertise

Holland/Germany c. £20,000

Interesting and challenging opportunities for TIP internals experts are currently on offer in both Germany and Holland. In neither case is language ability important, since successful candidates will be seen as Technical Consultants and therefore highly respected for their technical expertise and their ability to contribute effectively to solving an installation's TP problems.

Contact: Mike Creamer

Timesharing Sales

Manchester up to £15,000 package plus car

A well established international timesharing organisation which offers intelligent on-site systems wishes to appoint a Sales Executive to concentrate on North-West England.

The successful applicant must have extensive d.p. experience and above average sales record. Ability to take responsibility and work on his own initiative is essential.

The base salary and commission are negotiable according to experience.

Contact: Jim Baker

Sales Executives – Software Products

London based up to £15,000 package

An international software products organisation wishes to appoint a Sales Executive to take responsibility for the U.K. market.

Candidates must have a sound IBM software background and preferably a proven record of selling services or products in the d.p. industry. Consideration would be given to a software technician who has the flair and wishes to enter sales.

London interviews will be arranged as soon as possible. **Contact: Jim Baker**

IMS Database Consultants

London based to c. £15,000

Our client is extremely keen to meet Analysts, Designers or Project Leaders who can demonstrate a good knowledge of IMS – preferably although not necessarily the full dl/dc environment.

The company is a well established specialist consultancy, which has projects in all database areas and can give a committed specialist (or someone wishing to become one) a superb opportunity to gain all-round experience.

Contact: Andy Wright

Systems Consultants

London salaries to £12,000

One of the U.K.'s most respected specialist database consultancies has recently established a new mini-systems division. In order to enter the broader commercial market, and requires a number of high level professional staff to help build the business.

Ideal candidates will be well qualified and have over 5 years commercial d.p. experience. Naturally, the ability to lead and establish teams/projects is highly valued but initially in-depth experience of developing a range of commercial/financial systems on minicomputers will certainly be required.

Contact: Andy Wright

Operations Manager

London c. £8,500+

An experienced and able Operations Manager is required by this very large and prestigious organisation, to run a brand new installation.

Currently, the company operates a small d.p. department, running systems on a t/s line. The new Manager will initially prepare the ground for a new IBM 4341 – to be installed later this year – and then continue running the site. Ideal candidate will already have experience of the 4300 range, but any small to medium IBM h/w experience will suffice for those able to show first-class management qualities.

Contact: Andy Wright

Analyst/Programmer

Berks up to £7,000

A large international computer manufacturer has opportunities for Analyst/Programmers, with about two years commercial (COBOL) programming experience, to join an applications development group. Graduates looking for their first move would be ideal. Above average training and career opportunities. Salary according to experience.

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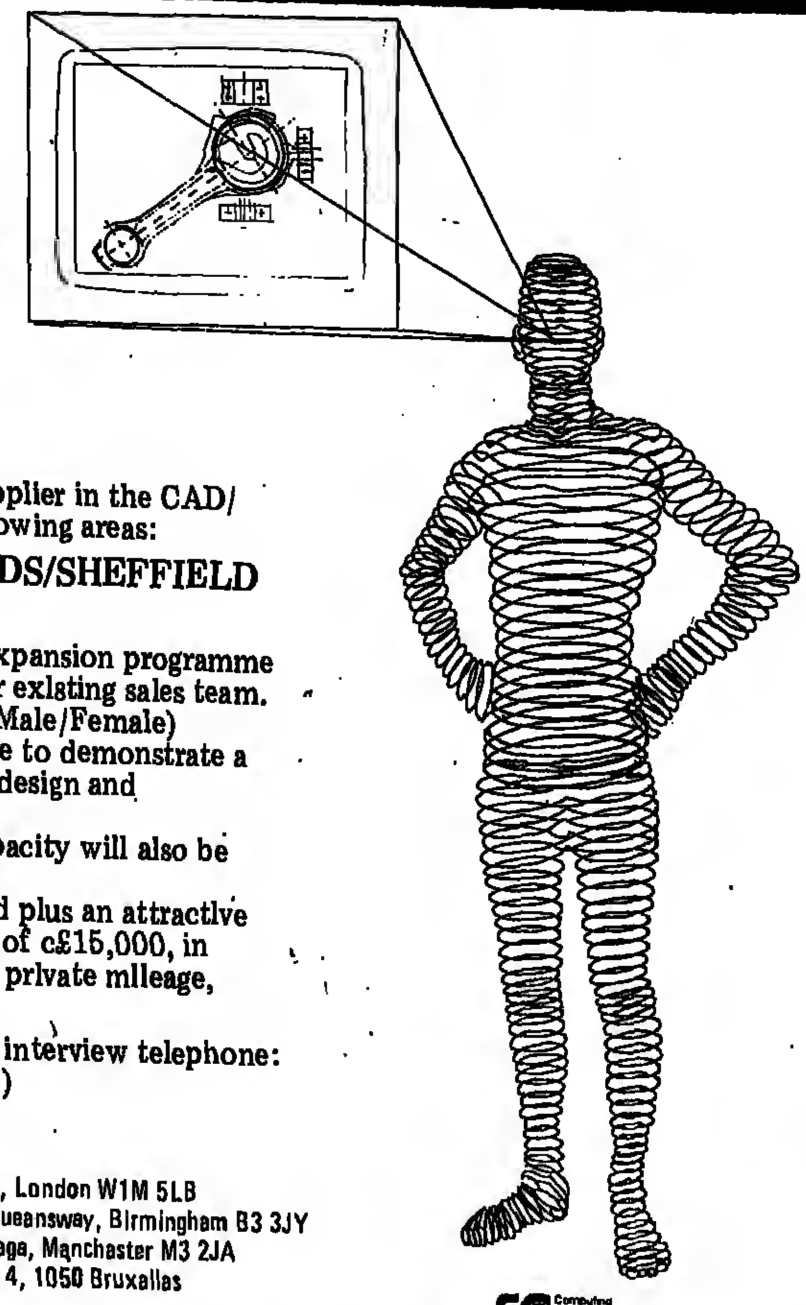

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Ideally the successful candidate will be aged 25-40 (Male/Female) currently selling Computer Systems to industry and able to demonstrate a successful track record. Knowledge of process control, design and manufacture would be a definite advantage.

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By way of remuneration a high basic salary is offered plus an attractive commission scheme, giving first year on-quota earnings of c£15,000, in addition to this a 2-litre GL Cortina is provided plus all private mileage, generous expenses and life assurance are also included.

For further information and an immediate confidential interview telephone:
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or: 021-742 1992 (Evenings and weekends)

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(690)

SHEFFIELD CITY POLYTECHNIC
DEPARTMENT OF COMPUTER STUDIES

RESEARCH ASSISTANT

The Department has been awarded an SRC research grant to investigate the implementation of Data Storage ...

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have vacancies for

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Gallaher (Dublin) Limited, situated at Tallaght in a south-western suburb of Dublin is part of a major international company, engaged in the manufacturing and marketing of tobacco products, including such well known brands as, Benson & Hedges, Silk Cut, Mellow Virginia, Hamlet, etc. We have recently upgraded our Data Processing facilities to a Honeywell B2/50 mainframe with 384K Memory, 120 MB Disk Storage, and 800 LPM Printer, using GCOS and Transaction Processing through VDU's. We now wish to expand our D.P. Staff and require the following personnel.

Systems Analyst

Ideally, candidates should have a professional qualification or a degree equivalent preferably related to Computer Science, Mathematics or related areas. Significant D.P. experience may be acceptable. Applicants should have good analysis experience coupled with a COBOL programming background. They must be able to demonstrate that they have played a senior role in the design and implementation of at least one major system. Salary in the region of £9,000.

Programmer

Applicants must have a minimum of 2 years solid (post training) COBOL programming experience, in a commercial/manufacturing environment. A number of New Systems are planned including on-line applications.

Console Operator

The Console Operator will have the responsibility for the operation of the Honeywell B2/50 Computer.

Applicants should have a Leaving Certificate including high grades in English and Mathematics and at least two honours.

Salary and fringe benefits are attractive. Applicants should, in the first instance, send a detailed curriculum vitae to:–

The Personnel Manager, Gallaher (Dublin) Limited,
Virginia House, Greenhills Road, Tallaght, CO. DUBLIN,
to arrive not later than Friday, 2nd May, 1980.

KUWAIT AIRWAYS

Kuwait Airways Corporation have vacancies for two Computer Service Engineers to be based in Kuwait.

The responsibilities include service of check-in Cargo and Reservations Computers and Data networks.

A minimum of 3 years relevant experience is required, preferably on mini-Computer Systems.

Salary is proposed at £12,000 p.a. with free accommodation. Salary is negotiable at time of interview.

There is no salary taxation in the State of Kuwait.

Please apply to:
KUWAIT AIRWAYS CORPORATION
Information Systems & Computer Services Department (DP), PO Box: 394, Kuwait.

Interviews will be held in April-May 1980.
Closing date for applications is 30th April 1980.

(847)

KUWAIT AIRWAYS

BERMUDA
SYSTEMS ANALYST

Salary $30,000 p.a. Tax-free

FREELANCE PEOPLE

PROGRAMMERS

London IBM Cobol/PL/1/Mark IV

PROGRAMMER/ ANALYST

circa £8,500 – Andover (Hants)

Are you ready to make your mark?

Our client is an expanding international company in the marketing and distribution fields and will soon be establishing a new Data Processing Department in Andover (Hants) based on an IBM System 34 with standard applications software.

This expansion affords an excellent career opportunity for a programmer/analyst, with small-to medium-sized computer department experience, who is ready to take on full responsibility for initiating, developing and implementing new systems to meet the company's data processing requirements. You must have at least 1-2 years' experience of programming using RPG and have a total of 4-5 years in systems design and development. You should also be familiar with mini-computer software and applications.

In addition to an attractive salary, an excellent benefits package will be offered. Relocation expenses will be paid in appropriate cases.

the personnel executive's ad agency — nas

For more information, ring Roger Kinsey in the strictest confidence today on 01-388 6441, or write to him with full career details, quoting ref: CW/1 to: Nationwide Advertising Service Limited, Clifton House, Euston Road, London NW1 2RA

University of Bristol

Head of Micro-Processor Support

The University wishes to establish a Micro-processor Support Service within the Computer Centre to encourage and support the use of micro-processors within University Departments. It is seeking an

Experienced Electronics Engineer

to lead this new development in the computing service. The person appointed will be responsible for providing a consultancy service to user departments, the provision of courses on the principles and practical applications of micro-electronics and for ensuring that adequate programming, testing and diagnostic facilities are available to support those micro-processor systems in general use within the University.

Applicants should hold a degree in engineering, electronics or an equivalent qualification and preferably have some experience in the design and implementation of micro-processor systems. Some knowledge and experience of software systems and data communications techniques is also highly desirable.

The salary for the appointment will be on the scale Grade IA: £5,052-£8,769 p.a. or Grade II: £8,427-£10,484 p.a. (depending on qualifications and experience).

Further particulars may be obtained from the Registrar and Secretary, University of Bristol, Senate House, Bristol BS8 1TH, to whom applications should be sent by 9th May, 1980 (please quote reference EB).

(537)

Islington Finance

TRAINEE/OPERATOR/ SENIOR OPERATOR

(£3,813-£8,259 inc. plus 12½% two shift allowance — comparability award pending)

Required for 2.75 MB ICL 2960 running under VME/B and GEORGE 3. Experienced operators should have a minimum of 1 year's experience. Trainees should have relevant academic qualifications.

Contact Chris Carter on 01-226 1234 Ext. 216 or 218 for further details or write to Director of Finance, Town Hall, Upper Street, London N1 2UD quoting reference F200. Closing date 1st May, 1980.

OUR JOBS ARE OPEN TO ALL RACES AND BOTH SEXES

(640)

Software opportunities in Holland

in computer controlled telecommunications systems.

Increasing world sales of our public telephone switching systems (for instance a recent large order from Saudi Arabia) confirm Philips' position as one of the world leaders in this field. This, plus enhancements and additions to the range of switching systems, has created vacancies within the international development team working on these systems.

The development effort extends into the field of space and time division switching systems for local and trunk application and maintenance and network management centres. The work will include real time telephony applications, basic operating systems, general support and project generation areas.

That is why we are now looking for a number of

systems designers and **systems programmers**

to join our headquarters organization in Hilversum, Holland.

Systems Designers should have at least 2-3 years experience in real time or control systems software design.

Systems Programmers should have at least 2 years assembler language experience or experience in the high-level scientific programmer languages.

Attractive first class salaries will be offered.

In addition fringe benefits include:

- subsidized housing in an attractive area in Holland ('the garden of Amsterdam')
- profit sharing
- full relocation expenses
- settling in allowance
- contribution towards medical insurance costs.

The working language is English.

Both permanent and temporary (3-4 years) opportunities are available.

Interested? Do not hesitate to ring or write in full detail to Mr. Harry Constantine in our U.K. laboratory on Malmesbury 2861, ext. 266. Full address: Pye-T.M.C. Ltd., Ekco Works, Swindon Road, Malmesbury Wiltshire SN16 9NA for further information or write to: Philips' Telecommunicatie Industrie B.V., personnel department, attn. Mr. Ben van Dijk, p.o. box 32, 1200 JD Hilversum, The Netherlands.

Telecommunications — PHILIPS

ABC TRAVEL GUIDES LTD

(a member of IPC Business Press Limited)

require an experienced

DATA CONTROL CLERK

for their Computer Production Control Department in Dunstable. Duties include the setting-up and maintenance of Job Control, work submission via an ICL 7503 terminal and distribution of output. The RJE is linked to ICL 2960 (DME) and 2972 (VME) computers.

Applications are invited from those with I/O or operations experience within a medium/large computer installation, but priority will be given to applicants able to demonstrate their knowledge of JOSTICS and/or SCL.

As one of the world's leading producers of timetables for the airline industry, much of the work is geared to important deadlines. The ability to work under pressure for extensive periods is therefore essential. There is no shift work and overtime is payable at the usual rates.

The importance of this interesting and demanding position is reflected in the salary, which will be £5140 p.a. (minimum) from 1st April and there is scope for progress within this expanding organization.

For an application form ring:

Pam Brooker, Dunstable (0582) 600111 ext 274.

Systems Programmers

with or without DEC experience

The Scientific Division of ISA-UK provides a specialised service to the scientific and engineering community as well as a general time-sharing service for companies within the Philips U.K. Group. We have vacancies for systems programmers for our DEC 2060 installation

- We will pay up to £9,000 p.a. for a systems programmer with experience of DEC 10 or 20 equipment. You will be part of a small team, chiefly engaged in developing both major and minor enhancements and facilities in the software area to meet our users' requirements. As well as advising management on new hardware and software installations, you will carry out the usual implementing, testing and maintaining of manufacturers' software releases.
- c. £6,500 p.a. + training! We are looking for someone with a scientific background and an interest in data communications with a knowledge of at least one high-level scientific language like Fortran. Although you should have experience of an assembler and time-sharing, you probably won't have had experience of large DEC machines, but we are willing to train the right person, so that you can become part of the Philips' team which keeps it years ahead.

As well as good working conditions in Croydon – and we will help you with relocation expenses – we offer 5 weeks holiday, pension scheme, sports and social club and subsidised staff shop – with all the range of Philips' products.

Want to learn more? Ring Mike Endscott today for an application form and further information on 01-686 7766 or write to Val Apps, Divisional Personnel Officer, Philips ISA-UK, City House, 420/430 London Rd., Croydon CR9 3QR.

Information Systems and Automation — Simply years ahead — PHILIPS

Computer Services Sales

London – Sussex – Manchester

c. £15,000 +Car+BUPA

Unilever Computer Services employs some 700 data processing professionals, and is one of the top three computer services companies in the United Kingdom. It has affiliations with a similar major U.S. company, and as part of the Unilever Group it enjoys the financial backing of an organisation which has an annual turnover of around £10,000,000,000.

Unique within the industry U.C.S.L. provides computer services based on a total range of capabilities; main-frame processing, R.J.E., time-sharing, on-site minis, network facilities and applications software development. Integrating and developing these services is one of the largest and most professional customer services groups existing in Europe.

Since 1975 U.C.S.L. has enjoyed a fivefold growth. To maintain this performance the company is now seeking to employ additional experienced computer industry sales professionals. These individuals must have the ability to develop existing accounts and the energy and talent to generate and negotiate new business contracts at the highest level.

Successful applicants will have a thorough knowledge of computing facilities and an understanding of their application to a wide range of business requirements. They will be capable of working with and motivating high calibre technical support personnel.

The remuneration package offered is second to none with a high base salary, a generous commission scheme geared to realistic quota levels, free BUPA membership and a company car.

This is a real opportunity to join a company whose plans for success in the 1980s are based on a unique mixture of financial security, technological innovation and the continued adherence to a proven, successful business philosophy. For full information telephone Kevin McCourt or write with brief details quoting reference 3102.

All applications will be acknowledged and treated in the strictest confidence.

UCSL — UNILEVER COMPUTER SERVICES LIMITED

Lloyd Chapman Associates

123, New Bond Street, London W1Y 0HR 01-408 1670

·NORTH WEST·

MERSEYSIDE — c £10,000 + Benefits
COMPUTER SELECTION
A major DP user wishes to appoint a specialist at a senior level. The position will entail large hardware sizing, selection and evaluation, together with considerable supplier liaison. The ideal candidate will have undertaken a similar role on either large IBM or HONEYWELL hardware.

LAKE DISTRICT — c £7,000
CHIEF PROGRAMMER
This fast moving company are seeking a programmer with a sound applications background, together with some systems/technical support experience on mini or micro hardware. The position will entail staff supervision and user support.

NORTH CHESHIRE — c £7,500
SENIOR ANALYST
Our client is seeking an Analyst with over 2 years general commercial experience allied to a programming background in COBOL. The job will entail considerable user contact/design and experience in this area is sought.

LIVERPOOL — c £10,000 + Bonus
SYSTEMS PERFORMANCE
A major organisation is seeking a professional person to undertake a systems performance role. Experience of developing real-time systems on mainframes with preferably monitoring/simulation/tuning skills.
This is a senior position with considerable scope and responsibility.

MERSEYSIDE — to £8,500 + Bonus
SENIOR ANALYSTS
Our client is involved in large scale systems development utilising both mini and mainframe hardware together with sophisticated on-line/data-base software. They require mature staff with at least 2 years significant analysis experience.

MANCHESTER — c £6,500
SYSTEMS ANALYSTS
Large IBM user seeks a number of young analysts who have over 12 months systems experience together with a programming background. Systems under development are both advanced and technically challenging.

MANCHESTER — £6,000 + Bonus + 1600GL
SYSTEMS CONSULTANT
Our client wishes to appoint a consultant who will undertake user and sales support. You should combine at least 12 months COBOL together with some analysis experience, and be an outgoing personality.

MANCHESTER — to £7,500
SYSTEMS ANALYST
This manufacturing company require an Analyst with a wide background of manufacturing systems including production control applications. ICL 1900 experience is desirable.

NORTH CHESHIRE — to £7,500
SENIOR ANALYSTS
This organisation urgently requires professional staff with over 2 years commercial experience. A knowledge of large BURROUGHS hardware and DMSII design is a distinct advantage.

PRESTON — to £7,000
SYSTEMS ANALYST
Our client is seeking an Analyst with around 2 years general commercial experience. Developments are heavily biased towards on-line/database on IBM hardware and knowledge in these areas is sought.

Phone STEVE SYKES on Leeds (0532) 444185 [illegible] (0532) 662417 (evenings and weekends) or write to him at the address below.

ROCHDALE — to £8,500 + Benefits
ANALYST/PROGRAMMER
A hardware manufacturer requires two analyst/programmers with sound commercial experience to undertake support roles. Excellent negotiable salary package.

SOUTH MANCHESTER — c £5,500
PROGRAMMER
A programmer with around 18 months COBOL experience on systems of an engineering/manufacturing nature will find excellent prospects with our client. Any hardware background considered.

SOUTH MANCHESTER — to £8,000
SENIOR ANALYST/PROGRAMMERS
Our client, a leading systems consultancy offers a top notch salary and involvement on large scale projects to analyst/programmers with in-depth IBM COBOL experience. CICS and/or DL/1 very favourable.

NORTH MANCHESTER — c £7,000
SENIOR PROGRAMMER
A manufacturing company will shortly be updating to IBM 4341 and require a senior programmer with around 3 years commercial COBOL and some CICS.

LIVERPOOL — c £7,000
SYSTEMS ANALYSTS
This major company is looking for analysts with around 3 years IBM experience. The ideal applicants will have a minimum 1 year programming in Cobol, PL/1 or ASSEMBLER. Online and Data-base a distinct advantage.

Phone GORDON FORBES on Leeds (0532) 444185 (daytime or on Batley (0924) 476172 (evenings and weekends) or write to him at the address below.

MANCHESTER — to £7,000
SYSTEMS PROGRAMMER
A UNIVAC installation require a systems programmer having a background of around 3 years ASSEMBLER experience. Long term prospects in a modern and expanding environment.

MANCHESTER — c £5,500
PROGRAMMER
Our client utilises the latest HONEYWELL hardware, and require a programmer of around 2 years COBOL experience to assist in large scale on-line developments. Any mainframe background considered provided applications experience is of a general commercial nature.

MANCHESTER — c £5,500 + Big Benefits
SENIOR PROGRAMMER
A major hardware manufacturer wishes to appoint a senior programmer, having a minimum one year's ASSEMBLER on any hardware. Financial applications experience beneficial but not essential.

MERSEYSIDE — to £6,000
PROGRAMMER/ANALYST
a lively systems house require a programmer with around 18 months COBOL in a commercial environment plus a good educational background to initially undertake a programming role, but to also receive analysis training.

LIVERPOOL — to £6,000
PROGRAMMER/ANALYST
A world renowned manufacturing company has a requirement for a programmer with around 2 years ICL COBOL, to assume an analyst/programmer position. Relevant analysis training given to a good commercial programmer.

LORIEN COMPUTER SERVICES

Recruitment Consultants
OCS House, Servia Road, Leeds LS7 1NJ
Telephone 0532 444185
(24 hour Telephone service)

Analyst/ Programmers for Inspec

c £7,500

INSPEC is developing a new system to maintain its lead in the production of bibliographic databases, text handling, computer composition and typesetting.

The system is based on a PDP 11/70 under RSX 11M with on-line data entry and amendment of bibliographic data on VT100 or extended-character-set Logica terminals, with proof-printing on a Versatec electrostatic plotter printer. The on-line system will act as the front end to the existing 2956 under DME due to be upgraded in 1981.

There are vacancies for programmer/analysts with design and programming experience in ICL/IBM assembler and high-level languages keen to apply their skills to the problems of developing the new on-line system and communications between the existing machines and future replacements. Experience of ICL or PDP 11 equipment and of text handling of bibliographic systems is an advantage but not essential.

These posts are open to male and female applicants who will work in pleasant offices at Hitchin in rural Hertfordshire. Competitive salaries, with twice-yearly increases are offered together with job security and satisfaction in a friendly, professional atmosphere. Benefits include a 35-hour week on flexitime, 20 days' annual leave, attractive pension and life assurance schemes, subsidised meals, luncheon vouchers, a sports and social club and assistance with relocation.

INSPEC is a department of the Institution of Electrical Engineers and has been operating its computer-based abstracts database system for over eleven years.

CVs or requests for an application form should be addressed to

Personnel Manager

THE INSTITUTION OF ELECTRICAL ENGINEERS
Savoy Place
London WC2R 0BL
Tel: 01-240 1871

(568)

THE SUFFOLK COLLEGE OF HIGHER AND FURTHER EDUCATION

Required for 1 September 1980:

LECTURER GRADE 2 in ELECTRICAL ENGINEERING-MICROELECTRONICS

(Post Number 4.1S)

Requiring experience of the software and/or application of micro-processors.

LECTURER GRADE 2 in COMPUTER STUDIES

(Post Number 4.2S)

Requiring experience of data processing and computing in a business setting.

SALARY SCALE — £4808 to £7886 p.a.

For an application form and further particulars please send s.a.e. to the Principal, The Suffolk College of Higher and Further Education, Rope Walk, Ipswich IP4 1LT, to whom completed forms should be returned by 21 April, 1980. Please quote the appropriate Post Number.

(494)

TELECOMMUNICATIONS

A Technical Representative, preferably with relevant academic qualifications, is required by an International Record Carrier. Someone able to discuss with our engineers, customers and suppliers, lease circuits and associated telegraph FDM and Data Techniques. Also required is the ability to prepare system proposals for submission to the customer. Experience of British Post Office approval exercises would be an advantage.

An interesting opening in an expanding company — salary realistic for the right person.

Please apply with full C.V. to Box 1088.

(848)

Electronic Office Products

Product Manager c. £15,000+car.

Sales Engineers c. £12,000+car.

London Area.

Our Client is an established leader in the manufacture and supply of communications terminals and products to users of International telex, and telecommunications networks. Additional sales personnel are required to sell exciting new products to OEM and end user accounts.

A Product Manager is required to be responsible for sales of an intelligent-micro programmable telex interface for word processors, mini-computers, message switching systems etc. The ideal candidate will have a proven track record in the sale of mini-computers, communications peripherals or terminal systems.

Sales Engineers are required for an extensive range of telex compatible communications devices. This is an ideal opportunity for suitably qualified electronics engineers or experienced sales engineers to join a small, growing company with excellent promotion prospects.

Full product training will be given. Quoted earnings are based on a generous basic salary with commission based on realistic quota objectives.

Apply in confidence to Terry Harvey, or contact him for an application form. Evenings Gt. Missenden (02406) 4705 or office hours as below.

HR Harvey Recruitment
Executive and Computing Personnel Consultants
500 Chesham House, 150 Regent Street, London W1R 5FA. Tel: 01-734 5351

Financial Services Department

Programmer/Analyst

£5379-£5706 (inclusive)
Salary Award Pending

Following internal promotion we have a vacancy for a Programmer/Analyst based in our Computer Section at the Town Centre, Harlow. The Council operates a 40K ICL 2904 with EDS 60 and magnetic tape together with a communications system comprising of some twenty terminals based upon ICL 7502 and Philips PTS 6000 equipment with plans for further enhancement.

Applicants should possess a minimum of two years' overall computer experience preferably on ICL machines using COBOL.

A flexitime scheme is in operation. Housing may be available, full removal expenses paid, travelling expenses, lodging allowance, legal and re-location expenses available in appropriate cases. Sports and Social Club.

Application forms and job descriptions are available from the General Manager's Department, Harlow District Council, 17 Adams House, The High, Harlow, Essex CM20 1BD. Telephone Harlow 26662, ext. 66.
Closing date: 18th April, 1980.

(480)

THE OPEN UNIVERSITY
FACULTY OF TECHNOLOGY

ASSISTANT SCIENTIFIC OFFICER

Computing Unit

The Computing Unit exists to run the Faculty's Computing facilities and to provide an advisory and support service to staff, particularly those engaged in research. The Unit requires an additional ASO with specialist knowledge in the hardware and software aspects of MICROPROCESSORS and their applications. The ASO should be prepared to assist staff from any of the disciplines: Materials, Engineering Mechanics, Electronics, Design, Systems or the Energy Research Group.

Applicants should have a degree or equivalent in computer science, or a related field, and preferably 2 to 3 years' experience in, for example, an R and D department in an industrial, university or government environment.

Salary will be on the 1B scale for Research and Analogous staff £4,402-£9,309 plus pension benefits, over 6 weeks holiday and good sporting/social facilities.

Application forms and further particulars are available from: Mrs. A. F. Torr (4087/2), Faculty of Technology, The Open University, Walton Hall, Milton Keynes, or telephone Milton Keynes 653880, there's a 24-hour answering service on 653868.

Closing date for applications: 1st May.

(670)

Simulator Engineer and Technician

Two challenging roles for down to earth professionals

Simulator training is the most economical and effective means of putting pilots through their paces. Such are the demands of flying today that Britannia Airways' 6-axis Boeing 737 flight simulator, fitted with a computer generated image, is in constant use around the clock.

We're an airline that's going up in the world. We are growing in almost every aspect of our business and the simulator section now includes a 737 cockpit procedures trainer that will exploit the value of the flight simulator even more.

We now require two experienced professionals with a down to earth approach to their work to join a small informal team at our main base at Luton.

Simulator Engineer c. £7,500 + shift premium.

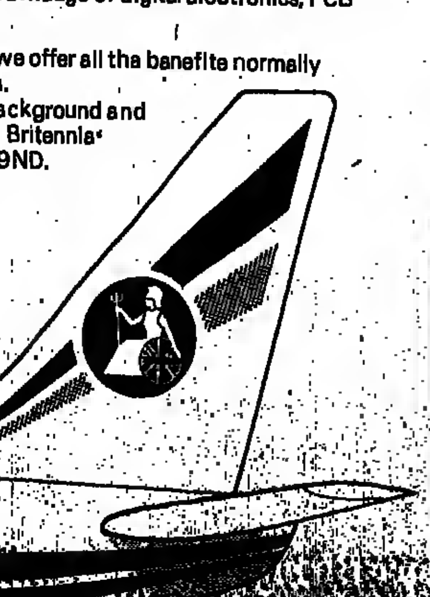
Our need is for a proven electronic/computer engineer preferably with experience of one of the following functions: programming, hydraulics, or aircraft systems.

Electronic Technician c. £6,500 + shift premium.

You could be from almost any area of electronics, but an ONC would be an advantage together with a knowledge of digital electronics, PCB assemblies etc.

In addition to attractive salaries we offer all the benefits normally associated with a successful airline.

Please send full details of your background and experience to Personnel Controller, Britannia Airways, Luton Airport, Luton LU2 9ND.
Telephone: Luton (0582) 424155



Britannia Airways

WILTSHIRE COUNTY COUNCIL

ASSISTANT COUNTY TREASURER (COMPUTER SERVICES)

SALARY: £12,921 x £297 (3)-£13,812

The County Council operates an IBM 3031 (jointly owned with Thamesdown Borough Council) with many terminals. The computer carries out a wide range of applications for various departments of the County Council and for a number of other authorities including the Area Health Authority. More than half the applications currently processed are non-financial and there are plans to extend the services provided.

The successful applicant will be directly responsible to the County Treasurer for the management of the Computer Division (50 staff) and the co-ordination of all the Council's computer services.

Assistance towards removal and relocation expenses in approved cases.

Further details may be obtained from the County Treasurer, County Hall, Trowbridge, Wilts. BA12 8JJ. Telephone Trowbridge 3641 Ext. 2608 (Mrs. Thorn), to whom applications, with full details of age, education, qualifications and experience, together with the names of two referees (one of which must be the current employer), should be returned by the 8th May, 1980.

(656)

£neg. PROGRAMMER Middx.
Programmer with experience of COBOL or PLAN to join small team within large organisation. ICL hardware.

To £9K SYSTEMS ANALYST S. London
Required to develop accounting systems. You will need 3+ years experience, to include design and implementation of at least one commercial system.

c£8.5K PROJECT LEADER London
Good programming and analysis ability with several years experience on Honeywell, IBM or ICL hardware in a commercial environment.

Many more unadvertised positions

168 FINCHLEY ROAD, LONDON NW3
Telephone: 01-794 0202

COMPUTECH 01-794 0202

Operations Manager for new Computer Centre Epsom Circa £8,000

The Thomas Borthwick Group is a leader in the international meat business with annual sales approaching £600M. They are forward looking and have recently established a computer centre; based on a dual Univac 90/30 configuration with communications to service their London international Headquarters, operating divisions and depots throughout the UK. Planned further growth and an increasing demand for the centre's facilities have created the need for a young and ambitious operations professional to join the management team.

You would be responsible for the control and administration of a small department, together with playing a growing role in formulating future DP policy; particularly with regard to the purchase of additional hardware and setting of operational standards.

Preferably living locally, you should have a minimum of 5 years in operations with at least 2 years in a supervisory role. Able to communicate with management and users alike, personality and ambition are more important than specific hardware experience. Communications knowledge would be desirable.

This position offers long term career opportunities in a successful and expanding company committed to D.P.

For further information please contact: Andrew Carter on 01-935 0671.

SCR
London 01-935 0671 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles
Specialist Computer Recruitment Ltd

CONTRACT PROGRAMMING

Big Pay, Big Selection

up to £300 p.w. plus all the advantages of being on contract

MIDLANDS

7 big paying special programming contracts.

c£300 per week, Midlands.
Special rates negotiable for very experienced applicants.

Top money in attractive middle England if you have PDP 11 with RSX11M programming in RTL2. If you have a communications/software background, you are ideally qualified for this contract. The money is good but we need ability. Ring us now for what must be the best opportunity of the year. Don't delay as there will be a lot of interest.

c£280 per week, Midlands.
Why not make yourself more money? You need it today. Start immediately if you have two years IMS DB DC experience in a full time environment. This client wants PL1 as well and ADF knowledge would be a big advantage ensuring you get paid top rate.

Working conditions are good. You can start immediately on a three month contract after which there will be a profitable review.

c£260 per week, Midlands.
If you have IBM 370 OS MVS and want lots of analysis this is a good paying and interesting contract. It is Midlands based so staying in an attractive centre is possible. You will be involved in support and maintenance of a large project. For an immediate start and just the right experience we could improve on the money, however, we need you to ring now.

All over the country we've opportunities for substantially increasing your money if you've got HW66 GCOS IDS &/or TDS COBOL. Take your pick from top jobs, top money in a district you want to be in. Phone us now for an imminent start to a golden opportunity.

NORTH

The earnings you have promised yourself are here.

c£270 per week, North East.
Come to an attractive part of the North East with its magnificent Border Country and be highly paid as well. If you have worked on CMC Reality and can work to purchase supply and cost monitoring systems for a variety of contract times ring us. Select your contract period.

c£260 per week, North.
Why not have a change from the south and enjoy good money. ICL 2904 on line COBOL experience on commercial applications fits you perfectly for this job. Come North for an immediate start. Ring us to tell you about the four month contract and five digit per annum money.

c£280 per week.
You are a structured programmer with IBM PL1 CICS and Adabas Roscoe Knowledge.
Come and be highly paid in the North West and then be able to go to North Wales and the Lake District in a couple of hours. There are three months plus contracts waiting for you.

c£270 per week.
You are a Senior Programmer and always thought about going to the North West. You know about IBM 370/138 DOS VS and 3 years COBOL with sound experience of command level CICS. Structured programming is required. If you have all this experience, we need you, especially with VSAM and supervisory expertise. We can't wait to hear from you. Don't delay, ring us and you'll soon be spending a week-end in Windermere.

Just a few of our other jobs.
IBM OS VS1 progs North £260
Scientific Fortran Progs N.W. £280
IBM Assembler Progs N.W. £270
HP 3000 Progs N.W. £260
IBM CICS Progs N.W. & Midlands £270
ICL IDMS Progs various locations £270

The Knight Security Package makes contracting easy & secure

We've produced a guide to contract work just for you, pointing out all the things you have to know. Phone now for a copy of this special problem solving leaflet. All you need to know about going contract the Knight Programming way.

Phone now for more information, an informal interview or meeting for this very special opportunity.
RING Manchester 061-833 9341/5 (24 hours) Birmingham 021-643 8867 (24 hours)

KNIGHT PROGRAMMING

Knight Programming Support Ltd., Adamson House, Shambles Square, Manchester M3 1RE and Kensington House, Suffolk Street, Queensway, Birmingham B1

Europe's largest data processing recruitment specialists.
London · Manchester · Birmingham · Paris · Amsterdam and New York

Knight Programming Security Deal

1. All dealings are treated in absolute confidence.
2. All meetings are completely informal where and when you want them.
3. Full expenses for all meetings will be paid.
4. Company accountant available to give full confidential advice about tax, mortgage arrangements, insurance and pensions.
5. We offer you continuous work giving you security of employment.
6. Accommodation assistance available.

Ring and ask for our leaflet explaining all about going contract the Knight Programming way.

Computer Careers
Oxford Circus

London Transport's Data Processing Department plays a vital part in keeping London on the move, using the latest hardware (IBM and ICL) linked to our various locations by our own private communications network. Our projects cover the whole range of London Transport activities and new applications are constantly being developed.

To meet our expanding requirements we are seeking a number of new staff:

Programmers
£p.a. £6,450
depending upon experience.

Operators and Senior Operators
£4,670 to £6,100

At least nine months' course for OS VS experience is essential.

Return date April

Our staff enjoy excellent career prospects, a friendly work environment, good sports and social facilities and all the benefits of a central London location, plus LTD. TRAVEL on all lines on London Transport services and generous reductions on British Rail.

LONDON TRANSPORT

For more information and an early interview please telephone Deborah Kelly on 01- 222 5600 between 9 a.m. and 5 p.m. or write to her for an application form at Staff Appointments, London Transport, 55 Broadway, London, SW1H 0BD, stating clearly the post which interests you, and quoting ref. NS7C.

M011

GERMANY
to DM 65,000 p.a.

We are an established systems house specialising in the real time application of mini computers to process control, communications and terminal based systems. Our German operation has built up an excellent reputation for high quality work which has led to an increasing demand for its services.

As such we are looking for analyst/programmers to join our permanent staff for work on a variety of interesting and demanding projects.

The computers we are working on include
DEC Honeywell Ferranti Data General
TI AEG Siemens Motorola Intel

Among the many benefits you will have working for an English company in Germany are:
Profit sharing
Travel allowance or company car
Attractive holiday arrangements
Free language tuition
Removal and settling in allowance

You will also enjoy a choice of good living accommodation with minimal commuting, and the advantage of excellent connections to the rest of Europe for travel and recreation purposes.

Additionally, we have vacancies in our London and Manchester offices.

Please reply to

Roy Stedman, or DAI GmbH, Herzogstrasse 61, 6078 Neu Isenburg, (nr. Frankfurt), Tel: 06102-38386.

Ms. Kristin Jew, or DAI Ltd., Axwell House, 24 Warwick Street, London W1R 5RB. Tel: 01-734 3486 ext. 31.

Patricia Hewitt, DAI Ltd., Alpha House, Rowlandsway, Wythenshawe, Manchester M22 5RG. Tel: 061-436 3122.

DAI

Manchester Business School & London School of Economics
New approaches to Systems Analysis & Design

COURSE TUTORS:
Professor Enid Mumford, M.A., Ph.D., C.I.P.M.
Frenk Lend, Senior Lecturer in Computing Science, London School of Economics

A two-day seminar for systems analysts and users in administration, commerce and industry who are interested in techniques to assist user involvement in systems design and in improving user job satisfaction through good design.

SEMINAR DATES:
MBS 9th and 10th June 1980
LSE 16th and 17th June 1980

For further details, please cut out this advertisement, insert your name, address and tel. no. below and post to: Professor Enid Mumford, Manchester Business School, Booth Street West, Manchester M15 6PB Tel. 061-273 8228

Name .....
Position .....
Co. Address .....
..... Tel. No. .....

COMPUTER OPERATIONS MANAGER
£7,524-£8,334 Weybridge

For Bronklands Technical College, Heath Road, to take charge of the day-to-day running of the new UNIVAC V77/600 192K, 12 terminal multi-access system which will provide a service to the College in respect of existing specialist computer courses and support for many others.

The Post should suit a man or woman who has previous experience as an analyst / programmer and now wishes to develop management expertise.

Benefits include generous assistance with relocation, 22 days' paid leave per annum and a pleasant environment in which to work, with an experienced team of computing staff.

Further details and an application form from the Chief Administrative Officer, but people wishing to discuss the Post beforehand should telephone Mr Alan Beare, Weybridge 53300, extension 247.

(640)

SURREY COUNTY COUNCIL

COMPUTING SERVICES UNIT

S/945
Senior Systems Programmer
reporting direct to Head of Unit. Will be responsible for the programming support provided by the Unit, and supervise 6 Programmers.
Applicants must be graduates with a minimum of staff supervision. Five years' sound programming experience on the ICL 1900 range using GEORGE 2, and preferably MAXIMOP, is essential. Experience of PLAN, COBOL and ICL software is also expected. Knowledge of FORTRAN, BASIC and other languages will be advantageous.
The current system is a 64K ICL 1902T using GEORGE 2 and MAXIMOP. Planning for a replacement system in hand.
Salary scale. PO, £7297-£8087.

S/948
Senior Programmer
Must be graduate with at least 3 years' proven programming experience of the ICL 1900 range and be capable of supervising staff.
A scientific programmer with experience of FORTRAN and preferably Algol, PASCAL or CORAL or a programmer to be responsible for the maintenance and advice to users on applications software, including SPSS, NAG, PATEC, computer graphics and micro-processor development aids required.
Salary scale: Technician 5, £5973-£6381
A Union Membership Agreement is in operation under which new employees are required to join a recognised union.
Removal Expenses Scheme.
For further particulars and application form (returnable by 18 April, 1980) please send a self-addressed envelope marked with the appropriate reference number to the Secretary, Manchester Polytechnic, All Saints, Manchester M15 6BH.

(513)

manchester polytechnic

Systems & Programming Manager
Middlesex to £11,000

A major company in the fast moving consumer industry has recently replaced its existing computer facility with Honeywell's latest machine.

A Manager is now required to transfer programmes to the new system and develop fresh applications.

This is an outstanding opportunity for candidates, with a sound background in systems and programming, to work in a progressive and expanding company using the latest technology.

Prospects of promotion are excellent together with a number of benefits one would associate with a company of this standing.

Candidates, male or female, please write or telephone D. D. Linstead.

G-B Management Services
Management Consultants
170 Piccadilly, London W1V 9DD 01-499 6308

HEREFORD AND WORCESTER COUNTY COUNCIL HEREFORDSHIRE TECHNICAL COLLEGE

Applications are invited for the post of

LECTURER GRADE II

in the Department of Science and Mathematics, duties to commence as soon as possible and not later than 1st September, 1980. Candidates must be suitably qualified to teach Computer Studies and Mathematics or Statistics. Experience of industrial / commercial application of computers would be an advantage.

Salary Scale
Lecturer Grade II
£4,806 to £7,896
per annum

Further details and application form can be obtained from The Principal (Ref GEL), Herefordshire Technical College, Folly Lane, Hereford HR1 1LS, to whom completed application forms should be returned as soon as possible.

(508)

NATIONAL INSTITUTE FOR MEDICAL RESEARCH

SYSTEMS PROGRAMMES

The Computer Laboratory of the National Institute for Medical Research at Mill Hill has vacancies for Systems programmers to work on the main computers in the Institute. These are a DEC 2040, a Hewlett Packard 3000 and a POP 11/34. The DEC 2040 is just being installed and the successful applicants would be involved mainly in developing system software for this machine, including the design of software for on-line data acquisition facilities for the various laboratories using microprocessors.
The successful applicant should have a computer science degree or equivalent qualification or a good computing background. Initial salary according to age, experience and qualifications (£4558-£7883, plus £398 London Weighting). (Further increases being negotiated — payable 1.4.80)
Please apply for an application form quoting reference RD/c by telephoning 01-959 3988 Ext. 221, or by writing to Mrs P A Wilde, P.O., N.I.M.R., The Ridgeway, Mill Hill, London NW7 1AA.

(506)

Athens — Greece
Analyst-Programmer
Greek National

We are a major Greek general contracting company, operating both in Greece and abroad. Our EDP Dept. is located in Athens and is equipped with an on-line computer system based on a General Automation 16-460 mini computer.
Up to now we have been involved with the development of on line commercial type of applications, but we have already started implementing a small DBMS of our own design. We are looking for a Greek national analyst-programmer willing to return to Greece. He should preferably have Cobol background and some experience on mini-based on line commercial applications. Some systems management experience and / or DBMS knowledge would be advantageous. Nevertheless, Computer Science graduates without relevant experience will also be considered.
Salary is negotiable according to qualifications and experience, but within the Greek standards.

Please write stating full details of academic and commercial experience to:
Mr. Nicolas Dimitriadis
c/o BIOKAT CORPORATION
P.O. Box 22 Khalandrion, Athens, Greece
Telephone: 0030/1/682 5700

UNIVERSITY OF EDINBURGH
Department of Computer Science and Department of Electrical Engineering
MICROPROCESSOR APPLICATIONS
COMPUTER SYSTEMS HARDWARE
DESIGN AND MANUFACTURE OF INTEGRATED CIRCUITS

1 LECTURER or DEMONSTRATOR
1 COMPUTING OFFICER

Vacancies are available now for 1 Lecturer, Demonstrator or Computing Officer in the Department of Computer Science and 1 Computing Officer in the Department of Electrical Engineering. In addition, both departments expect new funding very soon to permit further appointments in the above or related areas. Anyone interested in a post in either of these two very active departments should apply now or at least write to indicate an interest; good Computer Scientists or Electrical Engineers of other specialisations are invited to apply, if willing to work in the above areas.
Salary (under review)
Lecturer £8,052-£10,464
Computing Officer £6,052-£8,709
Demonstrator or Assistant Computing Officer, £4,042-£8,385
all with placement according to age, qualifications, and experience.
Further particulars of the posts may be obtained from the Secretary, University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL. Applications by letter, including a curriculum vitae and the names of two referees, should be sent as soon as possible to the Secretary at the above address. Please quote reference 1023.
Candidates applying for more than one of the above posts need only send one application.

(650)

University of London-The London School of Economics

LECTURESHIP IN MICROPROCESSOR APPLICATIONS

Applications are invited for appointment from 1 October, 1980, or a new lectureship in Microprocessor Applications. The post is in the Department of Statistical and Mathematical Sciences, which has special interests in data processing and systems analysis. The successful applicant will be expected to interest himself in the application of microprocessors to the whole range of social sciences taught at the School.
Academic attainment in the areas of research interest, and previous experience in the use and maintenance of microprocessors and their associated software will be given special weight in evaluating candidates.
Appointment will be on a salary scale for lecturers of £6,052 to £10,464 (4 years plus £740 a year London Allowance. In assessing the starting salary consideration will be given to qualifications, age and experience.
Application forms and further particulars are available, on receipt of a stamped addressed envelope, from the Administrative Officer, Room H 618, The London School of Economics, Houghton Street, London WC2A 2AE, to whom completed application forms should be returned by 18 May, 1980.

(646)

Puzzle Answer

1	2	3	2	1
3	4	5	4	3
2	5	2	1	4
4	1	3	4	5
2	5	1	5	2

ASSEMBLER PROGRAMMER WANTED

80/80 AND UPWARDS BY PROGRESSIVE SYSTEMS COMPANY IN DERBY FOR INTERESTING PROJECTS

URGENT

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(609)

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A Sales and Marketing Services Company
London & Midlands

COMPUTER PERSONNEL RECRUITMENT MANAGER
Central London

We require a senior executive to develop a new recruitment company involving all categories of technical personnel for the supplier sector of the computer industry.

This is an excellent opportunity for a creative and experienced recruitment consultant to utilise his or her ideas and initiative within a well established organisation whilst enjoying considerable scope for personal advancement, possibly to director level.

Candidates will have at least 3 years experience of recruiting computer personnel, preferably in a management role within a well established recruitment agency.

There is considerable potential for high earnings via an income package which will be commensurate with the experience and achievements of the selected applicant.

We also have an exceptional job opportunity for a

Sales Recruitment Manager

Applicants must be completely fluent in all aspects of computer sales or have direct experience of sales recruitment at a senior level. There is considerable scope for personal advancement, possibly to director level.

Please supply complete career details to Alan Williams quoting reference SMR 0164.

Tel: 01-734 9776
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TRAINING, ASSESSMENT, RESEARCH, CONSULTANCY

OPS. MANAGER
Ref. CW/23/80

to £10,000
WEST MIDDX./SURREY

Our client is a multi-national engineering conglomerate and a leader in it's particular specialist field. In the U.K. they operate a medium sized mainframe utilising database and on-line techniques and are currently in the process of moving the hardware to a prestigious new site.

A requirement has arisen for a mature and resourceful specialist to head up their Computer Operations Section. This is a career opening and will probably prove attractive to a Chief Operator in a large installation or an Operations Manager in a small D.P. Unit.

The position offers an excellent basic salary and there are other attractive benefits. In appropriate cases relocation expenses of up to 30% of starting salary will be paid, plus generous subsistence allowances.
The essential requirements for the post are:

- Sound operations experience on any mainframe
- Proven man management ability
- A strong regard for standards and disciplines and the confidence to enforce them.

If you feel you measure up to this key job contact JACK COLLINGS at his office from 9 a.m.-5 p.m. on 0273 833848.
Alternatively simply send in your career resume and we will get back to you.

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SENIOR PROGRAMMERS
HIGH WYCOMBE
£9,000

PLUS: CAR
PLUS: Regular Salary Reviews
PLUS: Non-Contributory Pension Scheme
PLUS: Removal Package

Our Client, a member of a group of companies with a turnover in excess of £500 millions, is seeking SENIOR PROGRAMMERS to undertake DEVELOPMENT WORK. The hardware is UNIVAC 90/30 offering REAL TIME, ON-LINE facilities through a network of SIXTY VDU'S in SEVENTEEN LOCATIONS.

Applications will be considered from candidates with any mainframe background but ideally this should be Univac, Cobol and Assembler. About 3 years proven experience is required, together with evidence of dedication and commitment.

The Programming team traditionally has been a compact unit which is now being expanded to meet further growth. The development of individuals within the department is encouraged by their involvement in all aspects of the system.

Vacancy Reference W232

PROGRAMMERS
£ NEGOTIABLE

PLUS: Regular Salary Reviews
PLUS: Non-Contributory Pension Scheme
PLUS: Removal Package

Candidates should have at least 1 years COBOL experience on any mainframe. We are particularly seeking applicants with POTENTIAL to develop into more Senior Programming positions.

Vacancy Reference W233

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TELEPHONE: Walsall 32646 Evenings and Weekends
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